IDG .net

SPECTRUM DIRECTION Cabletron's Michael Skubisz wants to expand beyond net mgmt. platforms. Page 18.

GIVING IP THE LOOK-SEE UUNET's Jeff Sturgeon says the ISP is giving IP's label switching a try. Page 33.

The newsweekly of enterprise network computing

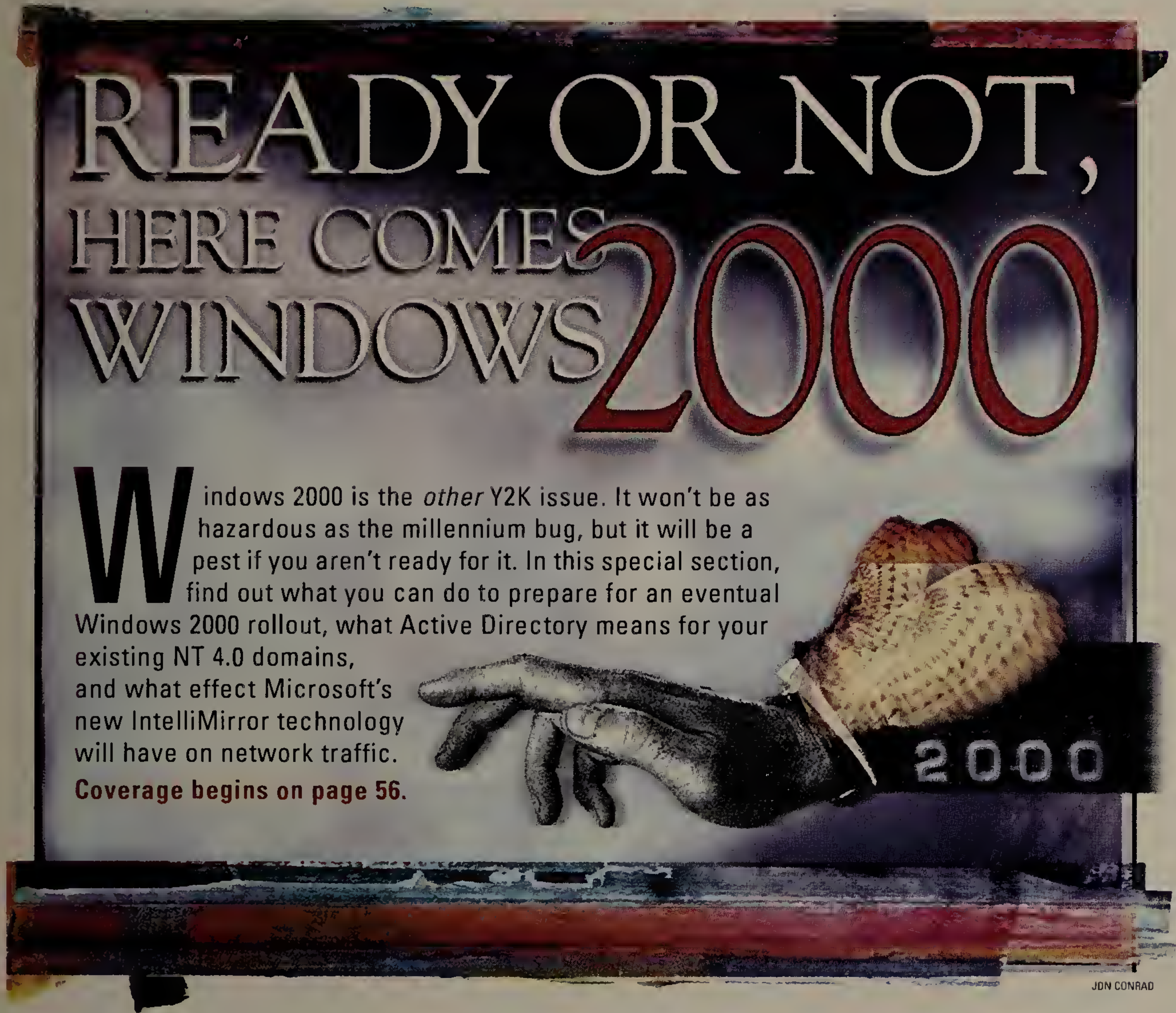
NetworkWorld

'NET hopes and fears

Vint Cerf and others ponder the Internet's future. Page 8.

June 28, 1999 Volume 16, Number 26

The network portal: www.nwfusion.com



READY OR NOT, HERE COMES WINDOWS 2000

Windows 2000 is the *other* Y2K issue. It won't be as hazardous as the millennium bug, but it will be a pest if you aren't ready for it. In this special section, find out what you can do to prepare for an eventual Windows 2000 rollout, what Active Directory means for your existing NT 4.0 domains, and what effect Microsoft's new IntelliMirror technology will have on network traffic.

Coverage begins on page 56.

JON CONRAD

More trouble for AT&T cable plan

Big rivals enter fight to open cable nets to all.

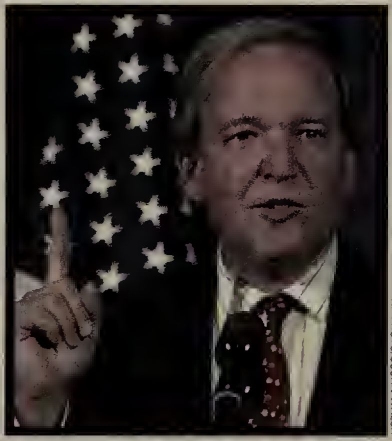
BY DAVID ROHDE

WASHINGTON, D.C. — Already reeling from ISP-inspired legal assaults on its broadband cable access strategy, AT&T is bracing for a new blow: A group of regional Bell operating companies is launching its own attack.

As early as this week, a new coalition backed principally by RBOCs will make its debut. The group, as yet unnamed, will be headed by two political-figures-turned lobbyists: former White House Press Secretary Mike McCurry and former Republican Congresswoman Susan Molinari.

The group's message appears to boil down to this: We're not wild about AT&T's cable network access strategy, but if AT&T gets to keep its net closed to competitors, then the Bells should get to do the same with their digital subscriber line (DSL) and other broadband facilities.

AT&T is battling for approval



AP PHOTO/SUSAN WALSH

Former Clinton Press Secretary Mike McCurry will co-chair an RBOC-backed group lobbying for its own twist on AT&T open cable access.

See **AT&T**, page 78

Cisco to speed DB2, CICS access

BY MARC SONGINI

RESEARCH TRIANGLE PARK, N.C. — Cisco this summer is expected to introduce software designed to give TCP/IP users faster, more reliable access to SNA transactional applications on mainframes.

Sources say Cisco this week will announce Cisco Transaction Connection (CTRC), an IOS software add-on previously called Database Connection.

CTRC, which will be bundled with IOS, lets IP users access IBM's DB2 database directly through Cisco routers that are equipped with Channel Interface Processor (CIP) cards.

Later this summer, Version 2 of CTRC will add access to Customer Information Control System (CICS) transaction applications.

See **Cisco**, page 80

More Online

- More product details from Cisco.
- A look at IBM's database access protocol.

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DSL: Three little letters that spell big savings on frame relay

BY TIM GREENE

Are you shelling out $500 per month or more per T-1 line for frame relay access services?

You could save money by choosing a carrier that uses digital subscriber line (DSL) technology to deliver the service.

US West's !nterprise division last week introduced a service that saves customers $95 per month, per line, by using ISDN-based DSL instead of a T-1 circuit to access !nterprise's frame service (see graphic, page 80). !nterprise is the data network and product development arm of US West

See **DSL**, page 80

"Two and a half years ago, we took one of the most mission-critical systems in the U.S. and put it on Windows NT. It was a bold decision at the time. But it's helped us lower our cost per transaction by two-thirds. In fact, I've had a number of my peers who had gone to UNIX say that they wished they had done what we did."

Steve Randich, CIO, Chicago Stock Exchange
on choosing Microsoft® Windows NT® Server 4.0 over UNIX ►

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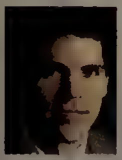

Keeping Current. The sky continues to fall on Iridium, the satellite-based global wireless system. Fred McClimans says recent price cuts aren't going to stop the company's plunge to the ground. **DocFinder: 3528**

Foo' Bar. The head techies at The Motley Fool periodically get mail that basically says, "You use NT and IIS. Therefore, you are idiots." Never mind that www.fool.com is one of the larger sites on the 'Net. This week, Foo' Bar begins to take a look at the tools The Motley Fool uses to keep its Web site up, and how the company chose them. **DocFinder: 3530**

Server crashes. Last week, Dave Kearns wrote that system administrators are mostly to blame for server crashes. Some system administrators beg to differ – a few quite vociferously. "What about incomprehensible vendor documentation and poorly written operating systems?" they ask. But Kearns also finds some supporters online. Join the battle, um, discussion. **DocFinder: 3539**

Water Cooler. How's this idea grab you: Outsource your business applications to a carrier. No, we're not talking application service provider (ASP) here. That was the basic idea behind AT&T Network Notes a few years ago. It didn't work then, but *Network World* Online Editor Adam Gaffin argues that outsourcing may hold lessons for today's crop of ASPs. **DocFinder: 3540**

DSL pricing. See what sources are available in your area, at what prices, with our digital subscriber line pricing system. **DocFinder: 3344**

How to get onto Network World Fusion

Click on Register on the home page and follow the instructions. Subscribers, keep your NWF number — highlighted on the front cover's mailing label — handy during registration. Nonsubscribers must fill out an online registration form.

NetworkWorld

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The carrier has built a network that can carry any type of traffic. Page 38.

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HOW TO CONTACT US

WRITE: Network World, 161 Worcester Road, Framingham, MA 01701; CALL: (508) 875-6400;
FAX: (508) 820-3467; E-MAIL: nwnews@nww.com;
CIRCULATION: CALL: (508) 820-7444;
FAX: (508) 270-8869; E-MAIL: nwcirc@nww.com;
STAFF: See the masthead on page 16 for more contact information. **REPRINTS:** (717) 560-2001

FEATURES

Special section: Windows 2000 Prep Work

Our crash course in Windows 2000 preparedness training will help ease the pain of a rollout. Page 56.

Don't migrate from NT 4.0 domains to Active Directory before you read these tips. Page 58.

Find out how Microsoft's IntelliMirror management technology uses client-side caching to conserve network bandwidth. Page 62.

CHARGING AHEAD WITH FUEL CELLS:

First National Bank of Omaha powers its data center with the same top-of-the-line technology used by NASA. Page 64.

NEWS BRIEFS, JUNE 28, 1999

Lucent plunking down $900 million for Nexabit

Dollar signs were flying at Lucent last week. No sooner had carrier Level 3 Communications agreed to buy up to $1 billion worth of Lucent products (see story, page 13) than Lucent announced plans to snap up terabit router vendor Nexabit Networks for $900 million. Nexabit, a privately held Marlborough, Mass., vendor, will add high-speed Internet routers to Lucent's data network portfolio, which also includes Lucent's PacketStar and Ascend's GRF gigabit routers. The other Lucent devices will sit at the edge of service provider nets, feeding data to Nexabit NX64000 routers in the core, observers say. Lucent expects the transaction to be completed by July 31. Nexabit was founded in 1997 by CEO Mukesh Chatter, who will become a Lucent vice president.

Nexabit founder Mukesh Chatter sells out to Lucent — for big bucks.

Microsoft rumor mill heats up

Enterprise resource planning software vendor The Baan Co. hasn't been hot on Wall Street for the past year because of its nose-diving stock, but the company's possible acquisition by Microsoft has certainly been a hot topic of late. Although Microsoft officials would not comment, Baan CEO Mary Coleman told Reuters she had a responsibility to consider viable offers. But Coleman said she expects Baan to stay independent. A former Baan employee, who asked to remain anonymous, said the Microsoft rumor is actually about 2 years old. A better tip, the source said, was that Baan was looking to merge with competitor PeopleSoft. In an interview on CNN/fn, Coleman refused to comment on this rumor. But Gary Clairmont, an analyst with Benchmarking Partners in Cambridge, Mass., says the relationship would make sense. "PeopleSoft is services-oriented and Baan is manufacturing-oriented, and there is not a lot of overlap," he says.

G.Lite DSL standard set

The International Telecommunication Union last week gave a final blessing to the G.Lite standard — now designated G.992.2 — for digital subscriber line technology. G.Lite is expected to boost the market for high-speed Internet access via standard telephone lines for remote users and branch offices. G.Lite technology allows 1.5M bit/sec Internet downloads over standard copper lines without disrupting normal telephone service. G.Lite also eliminates the need for carriers to send technicians to homes or businesses to install splitters so concurrent Internet and telephone access can be maintained.

Real life won't be this easy, kids

Nortel Networks last week offered a lucrative three-month internship to a class at Northwest Kansas Technical School. The 39 students in the class, who are eight months shy of completing their degrees, will spend three months in Los Angeles installing wireless-communication equipment. Nortel would not release salary figures, but *The Wall Street Journal* reports that the students are earning $11 per hour and are working as many as 90 hours per week. Nortel is paying all travel and lodging expenses, and a Ford truck is included for the students' use. The students live in an L.A. apartment complex with a swimming pool, whirlpool bath, stocked kitchen and biweekly maid service.

Smile soldier, you're on Battle-Cam!

Can virtual battlefields be far behind? The Army is moving into the 21st century with the creation of the First Digitized Division (FDD), part of the 124th Signal Battalion station at Ft. Hood, Texas. The FDD will have battlefield-ready video and data collaboration gear so commanders can share maps and other visual information while riding in their Humvees. Systems integrator GTE Government Systems in Taunton, Mass., is putting the Army's package together. The system includes White Pine's Meeting Point hardware for connecting multiple video end points and VideoServer's Encounter NetGate products. The system works by setting up a line-of-sight wireless network between Humvees on the battlefield. Satellite uplinks then connect the commanders back to headquarters.

Group wants to ease the Y2K pain

Hoping to reduce the impact of the Year 2000 bug on the high-tech industry, a group of IT vendors has joined the High Tech Consortium (HTC), a nonprofit organization that aims to pool resources and information about the readiness of high-tech suppliers. The HTC has 28 members, including Cisco, Compaq, Dell, Hewlett-Packard, Motorola and Qualcomm. The HTC includes 100 trained assessors from the member companies who, along with audit firms such as PricewaterhouseCoopers, will perform the onsite assessments of their suppliers. When the assessments are complete, the information will be stored in a database called the Data Sharing Service, which will be accessible to all member companies.

Novell adds zip to ZENworks

BY ROBIN SCHREIER HOHMAN

NEW YORK — Novell this week will unveil ZENworks 2.0, an upgrade of the company's directory-enabled desktop management tool that includes:

- Added support for managing software inventories.
- More intelligent software distribution.
- Workstation diagnosis for help desk troubleshooting.

ZENworks provides application, workstation and remote management for NetWare and Windows networks.

On the application management side, ZENworks 2.0 will provide criteria-based software distribution. This will let net managers poll workstations to see whether an application has the hardware and software needed for a successful installation. The new version will also be able to distribute software overnight, as long as a workstation is turned on.

Novell's ZENworks upgrade boasts improved management tools.

Users will also be able to write macros to customize software installations to include specifications such as a default drive for storing the install or instructions to restart the machine after an install.

For workstation management, Novell has added support for extensible policies for Windows applications, which will let users employ third-party policies. Previously, ZENworks could only work with Microsoft core policies.

ZENworks 2.0 can also poll workstations to maintain a software inventory, which helps to control user licenses and software copies.

In the area of remote management, Novell has added diagnostic tools to help net administrators and help desks troubleshoot remotely. Net administrators will be able to control users' workstations remotely, as well. They will be able to perform all tasks, such as installing software and moving files, as if they were a user sitting at a desktop.

At PC Expo last week, Novell revealed two more distributors of its Internet Caching Services (ICS) software: PC vendors Pionex and Quantex, both of which make "white boxes," or generic-style machines.

In April, Novell announced that Dell and Compaq would be reselling ICS on servers optimized for caching. Dell and Compaq expect to ship products next week, says Mike Wilkson, Novell's ICS product marketing manager.

One network manager who was a beta tester of ICS on a white-box server was impressed with the software's performance. "I've played with the Cisco cache, and I've also played with some Linux-based cache systems — the public domain stuff — and this is by far the best one I've used," says Brian Chee, associate director at the Department of Information and Computer Sciences at the University of Hawaii in Manoa.

Neither Dell nor Compaq has announced the price or availability of its ICS products.

ZENworks 2.0 will ship next week, with a list price of $59 per user. ZENworks supports Windows 95, 98 and NT. ◪

Be a

Net Know-It-All

For the answer to this week's question and more net trivia, **visit Network World Fusion** and enter **2349** in the DocFinder box.

This week's question:

What was the first company acquired by Cisco?

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'Net gurus ponder future of advanced nets

BY SANDRA GITTLEN

SAN JOSE — The Internet's deep thinkers gathered in San Jose last week to hail and fret over the fate of a next-generation 'Net they hope will be for everyone, not just the technologically privileged.

Making that expansive vision a reality depends on the ability of network professionals and others to overcome a number of stubborn obstacles, including network capacity strains, a dearth of quality-of-service (QoS) standards and meddlesome lawmakers, said participants at the Internet Society's ninth annual conference.

STEVEN BORNS

> **"What scares me the most is running out of [network infrastructure] capacity to meet the demand."**
>
> Vint Cerf, former chairman of the Internet Society

"What scares me the most is running out of [network infrastructure] capacity to meet the demand," says Vint Cerf, who just stepped down as chairman of the Internet Society.

Participants in Internet2, a university-driven advanced network, used the global summit to show off their next-generation research projects. These efforts include high-powered video-collaboration applications that would take advantage of real-time global communication but would also put new strains on network resources.

One Internet2 project, NASA's Virtual Collaborative Clinic, combines complex medical imaging with high-speed networks. Using data from MRIs, CAT scans and other imaging devices, doctors around the world can remotely view and manipulate 3-D high-resolution images to diagnose patients and demonstrate possible surgical outcomes.

But project backers say a lack of QoS standards and unproven multicast technology are two of the biggest stumbling blocks to getting this type of high-bandwidth application deployed.

"The processing power is there, the bandwidth is there, but there is no quality of service," says Rich Wall, program director for Internet technology at IBM, which participates in Internet2. If you're going to do a remote diagnosis of the brain, you can't drop or delay packets that make up part of the image, he says.

The Virtual Collaborative Clinic uses multicast technology to disperse images around its high-speed network, but researchers say the technology has a long way to go.

"The biggest issue we had to tackle was getting the routers to function" fast enough, says Xander Twambly, a NASA research scientist. "The pass-through of multicast addresses is still too kludgy . . . and if you start getting substantial packet loss, it kills your network."

The International Center for Advanced Internet Research (ICAIR) is banking on QoS technology for its Video Portal Service, which was also on display at the event. The online video center, which lets users stream or download training videos and search through them, will deploy the Internet Engineering Task Force's Differentiated Services standard this summer to handle QoS. But ICAIR Director Joe Mambretti says the jury remains out on which QoS approach will be implemented across the 'Net.

Experts at the conference insist QoS is more than just a transport problem, too. "You're going to need quality in your desktop systems," says John Gage, chief researcher at Sun. "The quality of service on the Internet is infinitely better than what comes from Microsoft."

Until vendors make net software more manageable, "network managers will be under tremendous pressure to make the network more reliable," Cerf says.

Bandwidth is only a piece of that puzzle, he adds, and contends that server limitations and the low ceiling of today's forwarding and switching gear present more vexing problems. In general, the demand for capacity is so voracious that companies must redesign their networks every year just to keep up, Cerf says.

He also took on the government regulators, saying the 'Net is too young for lawmakers to start imposing harsh regulations. "I'm concerned about the proclivity of legislators to pass unimplementable laws," he says. For instance, ISPs should not be responsible for filtering objectionable content because "it's technologically impossible," Cerf says.

He calls the ongoing Washington, D.C., debate over Internet taxation "hopeless," in large part because of jurisdictional disagreements across geographic boundaries. However, Cerf says taxation must be part of any greatly expanded Internet because governments will rely on that revenue.

Although conference attendees were at odds about which problems to tackle first, there was consensus about the notion of widespread global expansion.

"It's more important to connect the world than to place a QuickCam on Mars," says Floyd Backes, a 3Com executive. "Otherwise the economic disparities around the world will continue." ◪

More Online

Vint Cerf has stepped down as chairman of the Internet Society to take up a new cause. See what the "Father of the Internet" is up to now.

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Correction

Last week's story about the ExploreZip virus (*NW*, June 21, page 11) listed an incorrect name for the VIRUS-L mailing list. To be added to the list, send an e-mail message to listserv@lehigh.edu with only "SUB VIRUS-L (your name)" in the message body.

Cisco unveils small office router

Company's 805 serial device provides frame relay, dial-up support.

BY JIM DUFFY

SAN JOSE — Small office and home office users who need to connect multiple PCs to the Internet via a single serial line may want to look at the new Cisco 805 router.

The 805 provides small offices with Internet access via frame relay, leased line, X.25 or asynchronous dial-up connections. Cisco also announced security enhancements to its existing 800 series routers, including support for IP Security (IPSec) protocol and the IP/Firewall Software Feature Set package. IPSec defines how to encrypt tunnels and manage security keys.

The new router features an Ethernet port and a serial port, which support synchronous serial connections of up to 512K bit/sec or asynchronous serial dial-up to 115K bit/sec with an external modem.

"It's working fine with a frame connection at 384K," says 805 user Anthony Cimino, network manager at Coastal Pacific Mortgage in Rancho Cordova, Calif. "But I would have liked an integrated channel service unit."

The 805 broadens the range of WAN options supported by the Cisco 800 series to include all common WAN links for small offices, Cisco says.

Cisco also extended the 800 series with new security features. The 800 series routers now support Cisco's IOS Firewall feature set and IPSec. The integrated firewall features include context-based access control, Java blocking and protection from denial-of-service attacks.

IPSec with 56-bit Data Encryption Standard provides standards-based encryption to ensure confidentiality, data integrity and data-origin authenticity while traversing the Internet. IPSec support on the Cisco 800 also lets customers use the Internet to create virtual private networks (VPN) for small offices and corporate telecommuters, Cisco says.

The 805 costs $999 and can be ordered now. The IP/Firewall Software Feature Set costs $300 and will be available in July for the 805. It is available now for other 800 series routers.

The VPN package, including firewall and IPSec, costs $450 and will be available in September for the 805. It will be available in July for other 800 series routers. ◪

The new Cisco 805 router offers Internet access, secure remote access.

Lotus sweetens the pot for Domino developers

BY PAUL MCNAMARA

SAN FRANCISCO — Domino applications will be easier to develop and more powerful if Lotus delivers on the promise of several product announcements made last week, customers and industry experts say.

About 1,500 developers and network executives gathered in San Francisco for DevCon '99, Lotus' annual development conference. Among the Domino enhancements touted there were support for HTML authoring tools and Microsoft's Component Object Model (COM) architecture; new offline application capabilities; and a workflow product.

New tools for Domino developers

Announced by Lotus at last week's DevCon '99:

- Support for Microsoft's COM software architecture.
- Support for a pair of HTML authoring tools, Dreamweaver 2.0 and Microsoft FrontPage 2000.
- Domino Runtime Services, which allow e-business applications to be run offline.
- Domino Workflow 2.0., which provides new workflow capabilities.

Due later this year, support for COM should allow Domino 5.0 shops to get more out of the skill sets of in-house developers who are already familiar with Microsoft tools and conventions.

"Many shops are committed to Web tools, like Microsoft's FrontPage, and they will now be able to use the workflow and security of Domino when publishing," says Chris Miller, senior systems manager at Catalyst Solutions Group in St. Louis.

The introduction of Domino Runtime Services, designed to let users run Domino applications inside a Web browser even while offline, will be particularly useful for developers of intranet and extranet applications, says Tom Austin, a vice president at Gartner Group. "Just think of how sticky a business-to-business purchase site might be if it worked online and offline," Austin says. "A customer could place an order while out on his boat fishing."

Among other DevCon news was the unveiling of Domino Workflow 2.0, which utilizes technology Lotus acquired earlier this year from OneStone. According to Lotus, the new offering will make Domino-based workflows easier to develop and manage.

Windows- and Windows NT-based, Domino Workflow 2.0 includes Workflow Architect, which lets systems designers create workflows using a drag-and-drop interface. Its engine includes five Domino databases that trigger and store process logic.

Domino Workflow 2.0 license pricing starts at $10,000 per server and $60 per workflow participant. The Domino Workflow Architect piece costs $2,500 per application developer.

Catalyst Group's Miller questions the decision by Lotus to offer Workflow 2.0 as a separate product.

"It should be a part of the core Domino environment," he says. "I would want it in one package." ◪

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* i-Cube Second Generation Switching Chipset—Competitive Performance Evaluation. Prepared by The Silicon Valley Networking Lab (www.svnl.com) and available at www.svnl.com/test_lab_reports.htm.
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ASP Consortium grows, but key players still absent from roll call

BY DENISE PAPPALARDO

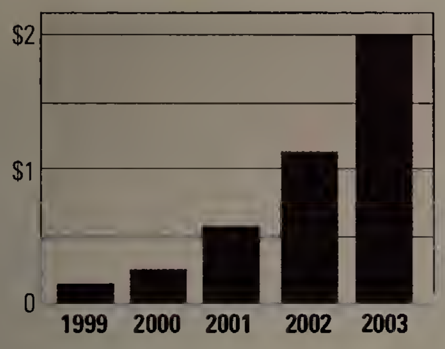
NEW YORK — The ASP Consortium announced last week that 31 more companies have joined the month-old organization. But the group's nearly 60 members are still without two of the most well-known application service providers.

Corio and USinternetworking (USi) have decided not to join the consortium. The two companies say their efforts are better spent on winning and retaining customers, instead of getting caught up in other companies' agendas.

What's all the hype about?

Analysts expect tremendous growth in the worldwide enterprise application service provider market over the next five years.

ASP revenue projections
(In billions of dollars)



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In fact, the two companies sent a joint letter to the consortium, saying "thanks, but no thanks" to the ASP Consortium's invitation to join, says Michelle Perry, vice president of marketing at USi.

Corio and USi are among the first companies to bring high-end enterprise ASP services to market.

Corio offers PeopleSoft human resource software applications. USi has a broader portfolio, offering enterprise relationship management software from Siebel System, electronic commerce software from Broadvision and Microsoft, data warehousing software from Sagent, and PeopleSoft software, as well.

The ASP Consortium doesn't seem too concerned about Corio's and USi's lack of participation. "We're open to anyone who wants to join us, and they've chosen not to at this time," says Traver Gruen-Kennedy, chairman of the consortium and director of advanced business at Citrix Systems.

The consortium has nabbed some big-name vendors, including Lucent, Sprint, Cisco, AT&T, MCI WorldCom's UUNET and Sun.

In addition to the major firms, the group has quite a few start-up members.

The group's goals are to educate the industry, sponsor research and foster standards. For instance, the consortium will develop "guidelines for standards," Gruen-Kennedy says.

These standards will help in the certification of ASP services by a third-party company such as Ernst & Young, one of the consortium's founding members. The standards also will outline how ASP services should be secured, delivered and managed, Gruen-Kennedy says.

But USi's Perry doubts that the group will be able to meet this goal. "You aren't going to be able to agree on standards in this type of group because there are too many companies with too many agendas," Perry says. "We wish the consortium 100% well, but it's not a good fit for us."

Corio echoes USi's sentiment. "We hope the group is successful in what it's aiming to do," says Scott Albro, business development manager at Corio. "But we're not entirely clear about what they're aiming to do, so we're not willing to invest time or money in it."

Next week, the ASP Consortium is expected to meet to fully develop the organization's framework, which will include setting up working groups, Gruen-Kennedy says. By the end of the summer, Gruen-Kennedy expects the group will have market research reports and results from those soon-to-be-formed working groups.

The consortium's goals are being discussed at a high level right now, despite the fact that the group was formed only one month ago.

With backing from its members that are network and telecommunications giants, the group stands a good chance of contributing something worthwhile to the industry.

ASP Consortium: www.aspindustry.org

IBM EXTENDS ASP REACH WITH ADDED SERVICES

IBM Global Services last week expanded its offerings in the fertile application service provider market with three new services.

IBM is adding to its existing relationship with Great Plains. The Great Plains Dynamics Financial C/S+ software accounting application, hosted by IBM, now supports up to 100 simultaneous users. The service used to support only 15 concurrent sessions.

IBM also forged new partnerships with SalesLogix and Ultimate Software. Under these agreements, the two partners' respective software can be hosted at an IBM data center or at a customer's site.

The customer's servers, regardless of where they are located, will be fully managed and monitored by IBM Global Services engineers. IBM will offer SalesLogix's Customer Relationship Management applications and Ultimate Software's UltiPro HRMS/Payroll human resource applications.

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— Denise Pappalardo

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MCI WorldCom wired for wireless

BY DENISE PAPPALARDO

MCI WorldCom is continuing its headlong plunge into the hot wireless business.

Last week, MCI WorldCom invested $300 million in Metricom, a small outfit in Los Gatos, Calif., that offers 28.8K bit/sec wireless Internet access services in three metropolitan areas. This is the fourth wireless announcement from MCI WorldCom in the last three months. The company is also buying SkyTel, and has already picked up CAI Wireless and PrimeOne, both of which are fixed wireless service providers.

In addition to the massive MCI WorldCom investment, Metricom nabbed another $300 million from Vulcan Ventures, which had already invested in the wireless company. Once the deal is approved by Metricom shareholders, Vulcan Ventures will own 49% of the company and MCI WorldCom will own 38%. The remainder of the company is held by other shareholders.

But MCI WorldCom's arrangement with Metricom goes beyond simply giving it cash to build out its network. Metricom is returning the favor by giving MCI WorldCom $350 million over five years to use MCI WorldCom's various data networks to expand Metricom's service footprint.

Metricom's deal with MCI WorldCom is nonexclusive, so the wireless company is free to strike deals with other network service providers.

As part of the deal, MCI WorldCom next year will sell Metricom's Ricochet wireless Internet access services to businesses and ISPs through UUNET, MCI WorldCom's wholly owned subsidiary, a spokesman says.

By adding a Ricochet PC Card modem to their laptop computers, users can dial in to the Internet from a car, train or hotel. The service does not need any special software and uses a standard Microsoft dialer.

While Ricochet is currently only available in Washington, D.C., Seattle and the San Francisco Bay area, Metricom is expected to make a faster Ricochet service available to customers in 12 metropolitan areas by mid-2000. The faster version of Ricochet is expected to support transmission speeds up to 128K bit/sec; MCI WorldCom will roll out this service to its customers in mid-2000.

Ricochet is based on a Metricom-developed radio frequency technology that uses the 902-MHz and 923-MHz bands to send traffic from its customers to Metricom radios deployed on light poles.

From the radios to Metricom's wired access points, the service will use the 2.4-GHz and 2.3-GHz spectrums, says Roger Nolan, a vice president at Metricom. ◪

Metricom's Ricochet

MCI WorldCom plans on reselling Metricom's wireless Internet access service to its business customers next year when Metricom builds out its network. Here are some of the bare facts about the service:

Service:	Ricochet wireless Internet access service.
Speed:	28.8K bit/sec today, 128K bit/sec by mid-2000.
Technology:	Ricochet is based on a proprietary radio frequency technology that operates in the 902-MHz and 923-MHz, and the 2.4-GHz and 2.3-GHz spectrums.
Availability:	Washington, D.C., San Francisco Bay area, Seattle.
Future availability:	Atlanta, Baltimore, Chicago, Dallas, Houston, Los Angeles, Phoenix, San Diego, New York.

Level 3 spends big to boost IP voice service

BY DAVID ROHDE

BROOMFIELD, COLO. — Emerging long-distance carrier Level 3 last week announced a big purchase of new IP voice equipment and software from Lucent. But Level 3 officials conceded their firm's long-awaited packet-voice service is still in testing and pricing is not set.

Level 3 will buy a minimum of $250 million in Lucent products, including Lucent's new Softswitch. That product is Bell Labs-developed carrier-class software that mimics advanced features of the public telephone network, using signaling and database look-ups, but is based on packet switching.

As a result, users will be able to employ ordinary 1+ dialing, call waiting, call forwarding, calling cards and the like, which have been mostly lacking in public IP telephony offers.

Level 3's Vidal was coy on pricing of the company's service.

Softswitch is in beta testing, and Level 3 will roll it out across the carrier's net in the second half of the year, says Level 3 Senior Vice President Ron Vidal. But Level 3 officials were not prepared to say if the service would be priced on a typical per-minute basis or some other way. "We're going through a whole review on this," Vidal says. "The initial pricing structure may or may not be revolutionary."

Voice services prices should go down over time because the services will not be based on tied-up circuits. "We intend to drop the price 30%, 40%, 50%, 60% per year," says Level 3 Vice President Josh Howell. "We may even give voice service away as part of a different service."

Time is of the essence for Level 3's IP Voice service, which officials have been talking up since last year. Consumer long-distance is below 10 cents per minute, and corporate long-distance on negotiated contracts is close to 5 cents per minute, with huge firms and the government already paying less.

Level 3's deal with Lucent — announced by the companies' respective CEOs — Jim Crowe and Rich McGinn — could run as high as $1 billion, depending on how demand shapes up for Level 3 services. ◪

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Iridium cuts prices, eyes smarter marketing

BY DAVID ROHDE

WASHINGTON, D.C. — Iridium, the satellite-phone and pager company that has suffered enormous losses, is singing a new, humbler tune under its new CEO.

The pitch: straightforward marketing to vertical industries rather than glitzy hype masking sky-high prices.

Iridium CEO John Richardson last week announced service and equipment price cuts for the Iridium offering, which pairs special phoneset devices with a network of 66 low-earth-orbit satellites that hand off calls for global coverage.

Slashing prices

Beginning this week, Iridium will cut wholesale prices to its distributors, resulting in reduced retail prices for users (see graphic). The phones will cost as little as $1,000, and pagers will be down to around $350, following concessions from Iridium handset manufacturers Motorola and Kyocera.

Down from the stratosphere

Iridium last week slashed prices of its phones and air time:

Handsets

- **New:** as low as $1,000.
- **Old:** about $3,500.

Air time

- **New:** $1.60 to $2.50 per minute for calls on the same continent; up to $3 otherwise.
- **Old:** $3 to $7 per minute.

Iridium will resell handsets, such as the Motorola 9500 Satellite Series phone, for about a third of the old cost.

Iridium has been plagued by manufacturing delays, lost marketing leads and sheer consumer resistance to prices as high as $7 per minute.

In its last published report, Iridium stated it had just over 10,000 subscribers, massively short of the 100,000 the company was supposed to have months ago to meet lender requirements.

Rethinking the plan

Iridium's creditors are now reassessing the company's strategy after granting Iridium a 30-day reprieve from default.

Iridium officials say they will target vertical markets that have always shown an interest in satellite communications, such as military, oil and gas, and maritime operations. Several of its distributors with no satellite sales experience are being dropped.

Motorola, which not only makes some of the handsets but also essentially began Iridium a decade ago and now owns 18% of the company, is reportedly examining whether to beef up its commitment to Iridium or try to sell its stake. ◪

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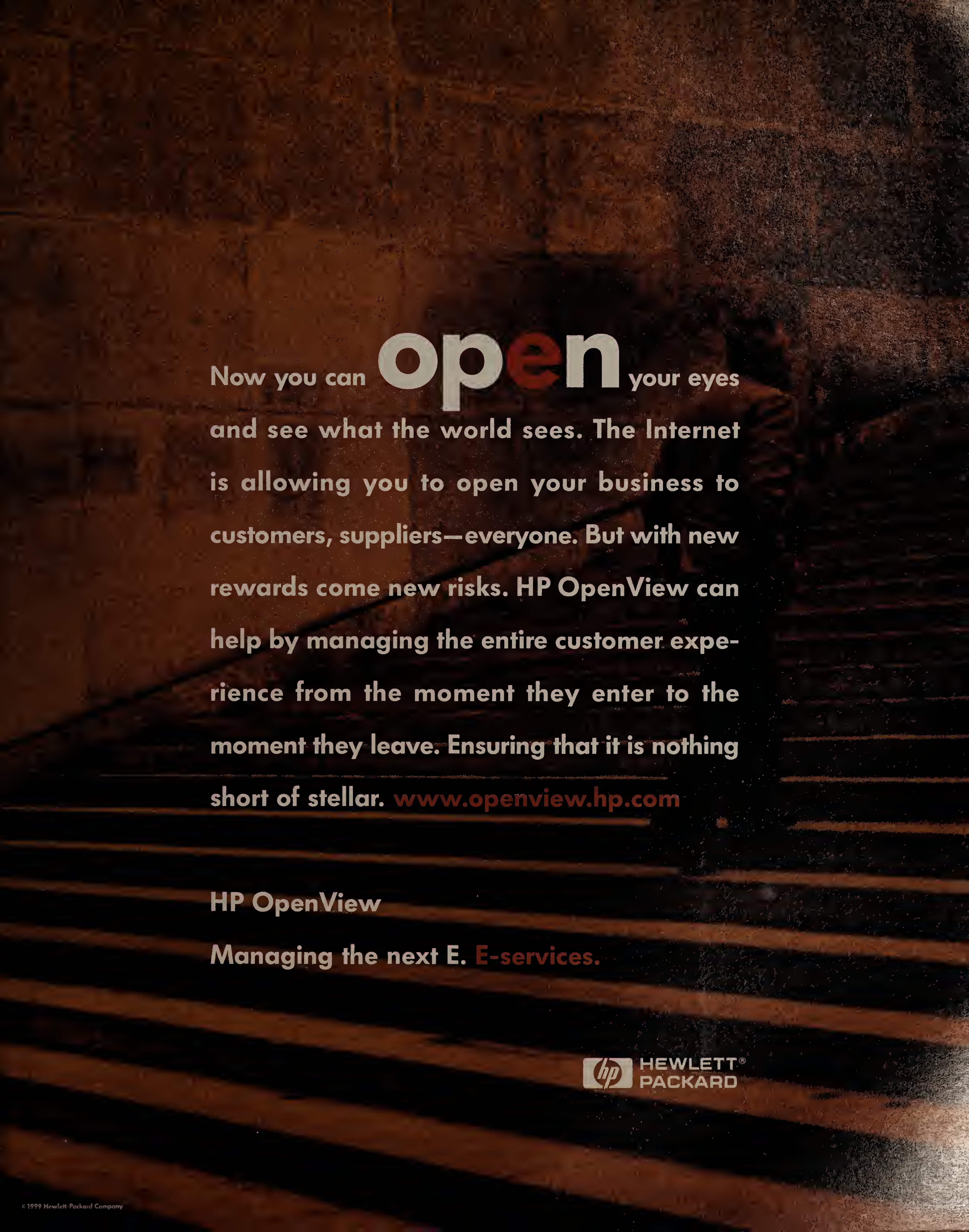

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3Com to rely less on NICs, modems

Company sees revenue growth in handheld devices, IP telephony and broadband access.

BY JIM DUFFY

SANTA CLARA, CALIF. — On the heels of a better-than-expected fourth quarter, 3Com's stock price dropped almost 14% Wednesday after the company said that it will de-emphasize sales of low-margin, price-sensitive network interface cards and modems.

During a conference call with Wall Street analysts, 3Com said that it expects 20% of its fiscal 2000 revenue to shift away from NICs and modems to switches, remote access gear and handheld devices. NICs and modems, which 3Com calls client-access products, accounted for 45% of the company's $1.42 billion in fiscal 1999 fourth-quarter revenue.

But 3Com wants to rely even less on these products for future growth and will aim to derive 75% of its revenue from other products.

"As we enter fiscal 2000, rapid growth of emerging new businesses such as handheld computers, IP telephony and broadband access, coupled with success of our systems solutions, are transforming the growth profile of the company," Eric Benhamou, 3Com chairman and CEO, said in a statement.

3Com's fourth-quarter earnings were slightly better than analysts expected. The company recorded earnings of $88 million, up 38% from last year's fourth-quarter earnings. But revenue of $1.42 billion represented just a 3% rise from revenue in the fourth quarter of 1998. Analysts say revenue growth will be even tougher in the next four or five quarters as sales of NICs and modems taper off.

"Technology transitions are difficult enough without being forced into it," says David Takata, an analyst at Gruntal & Co. in Beverly Hills, Calif. "This is really being forced upon them by a changing market — the sub-$1,000 PC, extreme price pressures and slowing growth in some of [their] business units. The company has a fairly aggressive plan, and it's going to be pretty difficult to manage its expense-to-revenue ratios during that period of time."

Gruntal has downgraded its recommendation on 3Com stock from "strong buy" to "hold."

Another brokerage firm, Warburg Dillon Read (WDR) in New York, is reiterating its "hold" recommendation on 3Com stock despite the network equipment maker's fourth-quarter results.

WDR says that 3Com is in "desperate need of some other 'hot' products" to sustain growth for several quarters and offset the decline in NIC and modem sales.

Some of those "hot" product areas 3Com is focusing on include voice over IP, home networking and broadband access, which includes cable modems, digital subscriber line and wireless technologies. But WDR notes that: "We do not have enough confidence that any of the product areas can be substantial and consistent contributors to growth over the next several quarters."

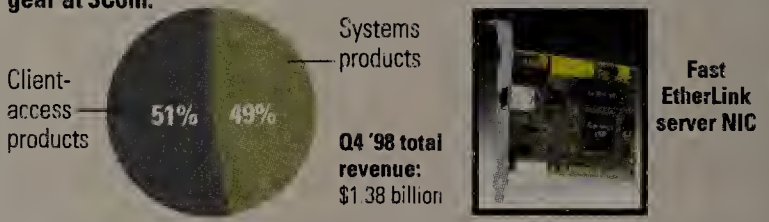
3Com, like fellow net equipment maker Cabletron, has struggled to retrench and stimulate growth by entering new markets.

This is in contrast to Cisco, which continues to post healthy revenue and earnings numbers, steal enterprise market share from 3Com and Cabletron, and win new business from service providers. ◪

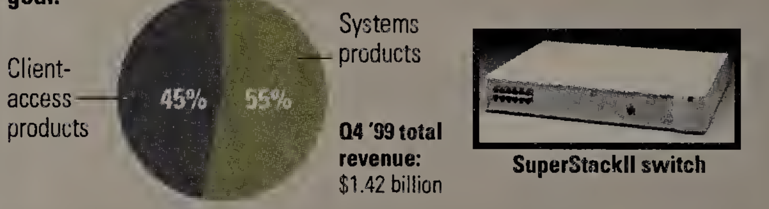
Revenue shift

In the company's fourth quarter, 3Com generated more revenue – for the first time – from enterprise network gear (systems products) than from NICs, modems and other client-access products. Going forward, 3Com expects systems products to continue outselling client-access products.

Client-access products, such as NICs, have traditionally outsold systems gear at 3Com.



But switches and other systems products now outsell client-access gear.



Wireless devices steal PC Expo show

BY JOHN COX

Two things were clearly hot at PC Expo last week: the New York weather and wireless devices.

Palm Computer stole the spotlight with an America Online deal that will let AOL's 17 million members get e-mail delivered to Palm's handheld computers. The deal could raise the awareness of corporate MIS groups about how well handheld computers can be tied into the Internet and into corporate intranet information.

To get your mail this way, you'll need a Palm III or Palm V device, plus some new client software that AOL is now writing. Add a wire-line or wireless modem and you'll be able to send and receive e-mail via your AOL account — bypassing your Windows PC.

The new service is due in the fall. Later this year, the two companies will launch AOL services for the Palm VII, a device with a built-in wireless modem that connects to Palm.Net, a kind of wireless portal with a range of Web-based information and services formatted for small-screen handheld devices.

The AOL deal came just days after Palm's parent company, 3Com, unveiled a joint venture with Aether Technologies International, a leading wireless systems integrator, to create Open Sky, which will act as a kind of wireless clearinghouse. Open Sky will connect a wide range of network clients, such as screen-equipped cellular phones, handheld computers and personal organizers, with Internet-based services and corporate groupware servers, such as Lotus Notes and Microsoft Exchange.

"Our goal is to give the user the tools to tell the network, 'This is the specific information I want.' Then Open Sky will send it to the handheld device," says George Davis, chief operating officer at Aether. The network will go live in November.

Not to be left out, Microsoft used PC Expo to announce a software development kit that carriers can use to create software connections between Windows CE palm-size computers and cell phones. In effect the phone becomes the computer's modem.

In addition, Socket Communications will create a line of cables to link the two. But it's an awkward, almost kludgy connection compared to the push-button simplicity of the Palm VII. ◪

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New Cabletron VP wants spotlight on Spectrum

BY JEFF CARUSO

ROCHESTER, N.H. — Reiterating the company's intent to make its Spectrum business more independent, Cabletron last week named a new leader for the network management unit — one who has big plans to expand Spectrum's focus and public profile.

Michael Skubisz, a 10-year Cabletron veteran who most recently served as chief technology officer, will take over the Spectrum unit as Cabletron's executive vice president of software.

A self-described "change agent," Skubisz says that over the next year he will try to make Spectrum a successful business within Cabletron, with an eye toward total independence. The Spectrum business already has its own profit-and-loss responsibility and is profitable, though Skubisz says the unit is "not as profitable as we'd like to see it." Cabletron says Spectrum generates more than $50 million in annual revenue, which represents about 4% of the company's business.

Skubisz will try to increase Spectrum revenue by expanding beyond platform software and into management applications that will run on Spectrum, as well as on other vendors' platforms, such as Hewlett-Packard's OpenView and Computer Associates' Unicenter. Applications could include capacity planning and service-level management tools.

Skubisz wants to increase Spectrum revenue and expand the platform's reach.

Spectrum's network management software needs to work with multiple vendors' equipment, but the product has been hampered from doing so because it is owned by Cabletron, a hardware vendor.

"It's very difficult to garner support from a Cisco, Lucent or Nortel Networks when Spectrum is viewed as just another product out of Cabletron," Skubisz says.

"Spectrum is a product in its own right that needs to be disassociated from the network equipment," says Elizabeth Rainge, research manager for network management at International Data Corp. in Framingham, Mass.

Skubisz recognizes the need to familiarize more people in the industry with the Spectrum brand name. However, he didn't divulge specific plans in this area, aside from noting that Cabletron will try to sell to more service providers.

In addition to announcing Skubisz's appointment last week, Cabletron posted its first-quarter financials.

The company reported a $22.5 million loss for the quarter, but would have recorded more than $7 million in earnings if not for assorted charges related to acquisitions and restructuring. Net sales were $349.5 million, up slightly from the previous quarter, but down 4% from the first quarter last year.

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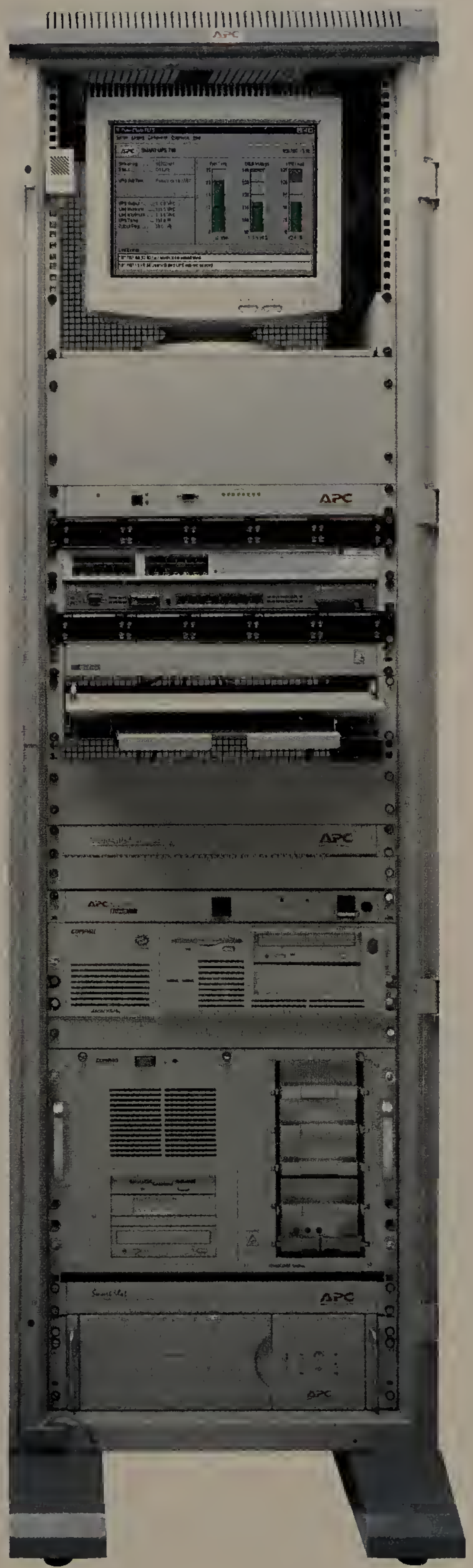

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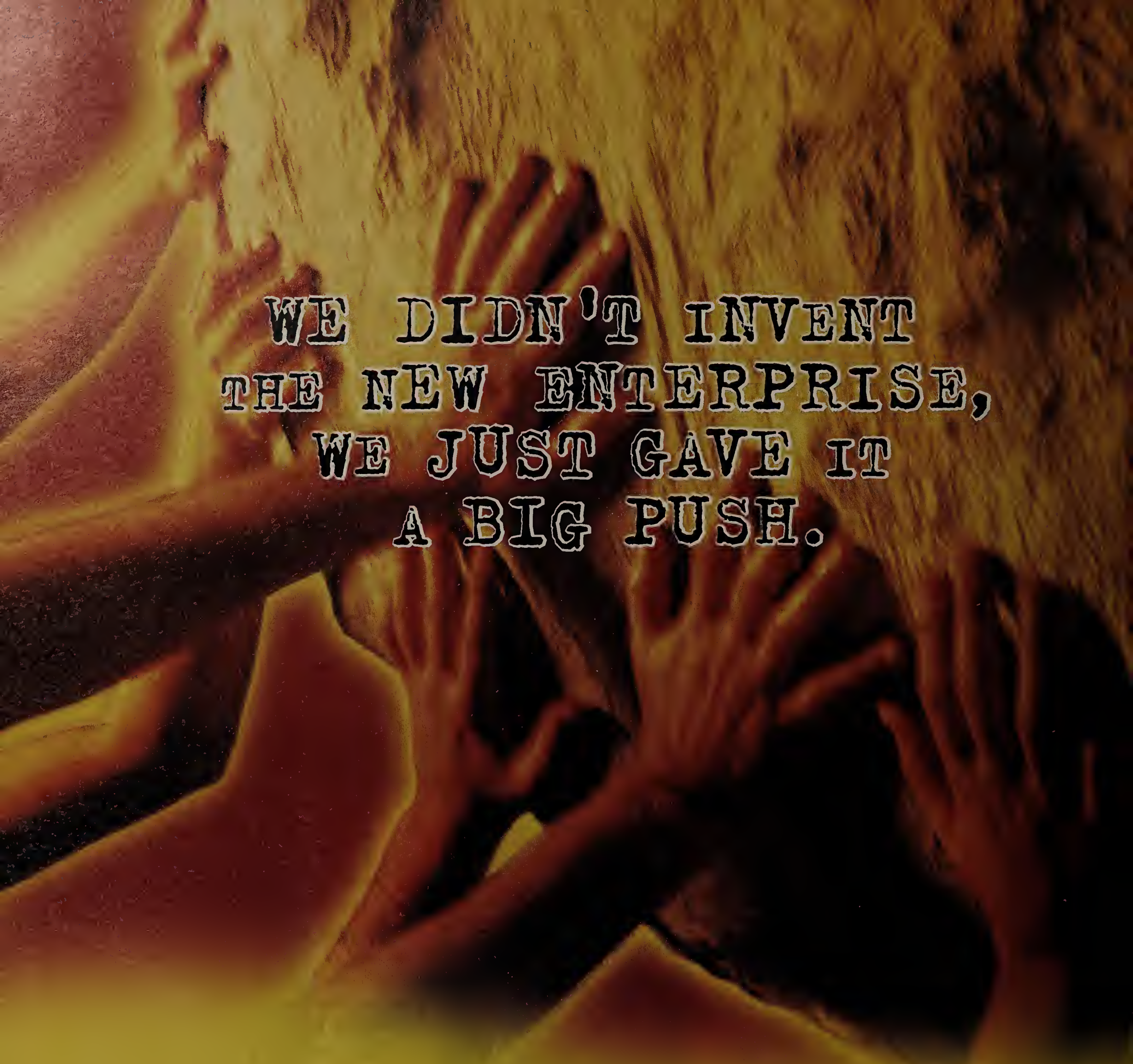

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Infrastructure

TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage

Briefs

Computer Network Technology has unveiled a full-duplex Fibre Channel switch for storage-area networks (SAN).

The **UltraNet Fibre Channel Switch** comes in eight- and 16-port configurations, with each port boasting 1G bit/sec of bandwidth. The switch connects Fibre Channel with SCSI, ATM or T-3/E-3 devices. The UltraNet switches can be configured with all switched ports, or with two Fibre Channel Arbitrated Loop ports, and the remainder configured as switched ports.

The switch uses cut-through frame forwarding and switch buffering to increase speed. The device also has self-healing capability. Other network devices can be attached to the switch without powering it down. In addition, up to 32 switches can be cascaded for large SANs.

The eight-port switch costs $22,000; the 16-port version costs $48,000.

CNT: www.cnt.com

NovaStor has unveiled a low-end backup package for Windows NT servers and workstations. Dubbed NovaBackup Windows NT Server Limited, the software runs as a Windows NT service and includes virus protection, encryption, disaster recovery features and data compression. It also has a scheduler that a network manager can use to handle unattended backups.

With NovaBackup, users can back up data to Digital Linear Tape, Quarter-Inch Cartridge, Integrated Drive Electronics (IDE) or removable drives. Operation is controlled through an icon on the Windows NT Control Panel or via the Windows NT Services icon.

Pricing for the product starts at about $150, or $90 if you download it from NovaStor at www.novastor.com.

Is Alcatel buying its way to the top?

Purchases put company in strong position vs. likes of Cisco, Nortel Networks in IP net race.

BY TIM GREENE

DALLAS — Alcatel has been on a buying spree that would make acquisition-happy Cisco proud.

The French carrier equipment supplier has spent $7 billion on five U.S. companies over the past 12 months, including $180 million earlier this month on Internet Devices, which makes the Fort Knox line of policy routers.

What's behind all these buyouts? Two things: Alcatel is looking to increase its U.S. presence and wants to better position itself to grab a big piece of the IP network pie.

"Technology is moving so fast, so when it becomes clear that we have a hole and need to plug it, we will go purchase something," says Krish Prabhu, CEO of Alcatel USA.

"Alcatel seems to be making the right strategic moves by acquiring data products to compete with Lucent, Cisco and Nortel Networks, as well as Europeans Siemens and Ericsson," says Ron Westfall, an analyst with Current Analysis in Sterling Va.

New gear will attract carriers

Prabhu says the purchases will let the company sell into carrier and enterprise networks and support the exchange of voice and data traffic between those networks. Alcatel says the enterprise gear should prove increasingly attractive to carriers looking to offer managed services that include a customer premises equipment component.

Since last June, the company has bought service provider equipment suppliers DSC Communications and Assured Access Technology, as well as Packet Engines, Xylan and Internet Devices, which are mainly enterprise network equipment suppliers.

Buying DSC gave Alcatel an in with major U.S. carriers that use DSC trunking switches, though the purchase did nothing to advance Alcatel's IP strategy. The deal has roughly doubled

See **Alcatel**, page 24

Alcatel's buying binge

Alcatel has been snatching up U.S. companies in an effort to buy its way into IP networking.

	Company acquired	Products	Price
June 1998	DSC Communications	Telecom access switches	$4.4 billion
Oct. 1998	Packet Engines	Layer 3 and Gigabit Ethernet switches	$315 million
March 1999	Assured Access Technology Xylan	Remote IP access gear for carriers Gigabit Ethernet switches	$350 million $2 billion
June 1999	Internet Devices	Fort Knox policy routers	$180 million

IN-SITE: *Lessons from Leading Users*

Paper's gigabit network helps deliver the news

BY JEFF CARUSO

An old linotype typesetting machine collects dust in the reception area at the *Las Vegas Review-Journal,* a major newspaper in this desert town. The machine doesn't get much use these days because things are done a little differently.

Editors and designers create the daily newspaper, which has a weekday circulation of 170,000, on PCs, workstations and Macintoshes; advertisers submit their ads electronically; and everything goes straight to photographic plates for use on a high-speed printing press.

The image files aren't small — up to 50M bytes per page — so the newspaper recently upgraded its network with a combination of Gigabit Ethernet and Layer 3 switching technology.

"Bandwidth is cheap," says Christopher Fredrickson, IS manager for the *Review-Journal,* which now has enough bandwidth to allow for more users and traffic as business expands. "If you size for what you have, you're not going to get anywhere."

Plan for the future

Fredrickson points out that many companies spend too much time measuring the performance of their networks to squeeze the most out of the bandwidth they have. Because bandwidth is inexpensive, a better alternative is to get more bandwidth than is needed, he says.

The company spent $60,000 earlier this year on switches from Foundry Networks, including a BigIron 4000 Layer 3 switching chassis and a FastIron II Fast Ethernet switch to connect Ethernet segments in the production network.

The FastIron II is "talking back and forth with the BigIron at lightning speeds," says Mat Chase, online technical manager at the paper. Lightning, in this case, amounts to two Gigabit Ethernet links bundled together.

BigIron connects the production

See **In-Site**, page 23

Cisco takes aim at the DSL market

BY JIM DUFFY

SAN JOSE — Cisco has introduced a handful of CPE products designed to let users take advantage of digital subscriber line (DSL) services for high-speed access.

The customer premises equipment (CPE) offerings include a DSU, a modem and three routers.

The products should let Cisco grab a bigger piece of what is expected to be a huge market. The asynchronous DSL (ADSL) market alone will explode from 500,000 lines this year to 4.5 million lines in 2002, according to International Data Corp. in Framingham, Mass.

Cisco's new 633 Serial synchronous DSL DSU will let small businesses use existing Cisco routers to access SDSL services. It supports an integrated SDSL WAN interface and a serial interface to the router and can operate at symmetric speeds of up to 1.2M bit/sec.

"Now every single Cisco router in the U.S. can be fully enabled with DSL for access to a DSL network," says Jim Greenberg, chief networking officer at Rhythms NetConnections, an Englewood, Colo., DSL service provider and Cisco customer.

Also new is the 673 SOHO/Telecommuter Router, which also works with SDSL services. It has a 10/100Base-T interface for connection to a small office/home office (SOHO) LAN or an Ethernet-equipped PC. The SDSL interface supports a data rate of up to 1.2M bit/sec.

A sampling of Cisco's growing DSL product collection.

Three other products, the 627 ATM-25 ADSL Modem, the 677 SOHO/Telecommuter Router and the 1417 Ethernet-to-ADSL Router, address the Discrete Multitone (DMT) Issue-2/g.lite market. DMT Issue-2/g.lite is a DSL standard for modems that support speeds from 1.5M to 7M bit/sec. The 627 can attach to a PC outfitted with an ATM-25 adapter card or to a Cisco 1401, 2600 or 3600 series router or other LAN device supporting a standard ATM-25 interface. The 677 has a 10/100Base-T half-duplex RJ-45 interface for connection to a SOHO LAN or Ethernet-equipped PC. The ADSL interface is an RJ-11 connector.

The 1417 router has a 10Base-T Ethernet interface and an integrated ADSL DMT Issue-2 ATU-R. The router can be connected to DSL access multiplexers adhering to the DMT Issue-2 specification.

Cisco's new DSL gear will start at $500. ◪

More Online

- More technical details from Cisco
- Overviews of DSL modems from other vendors.

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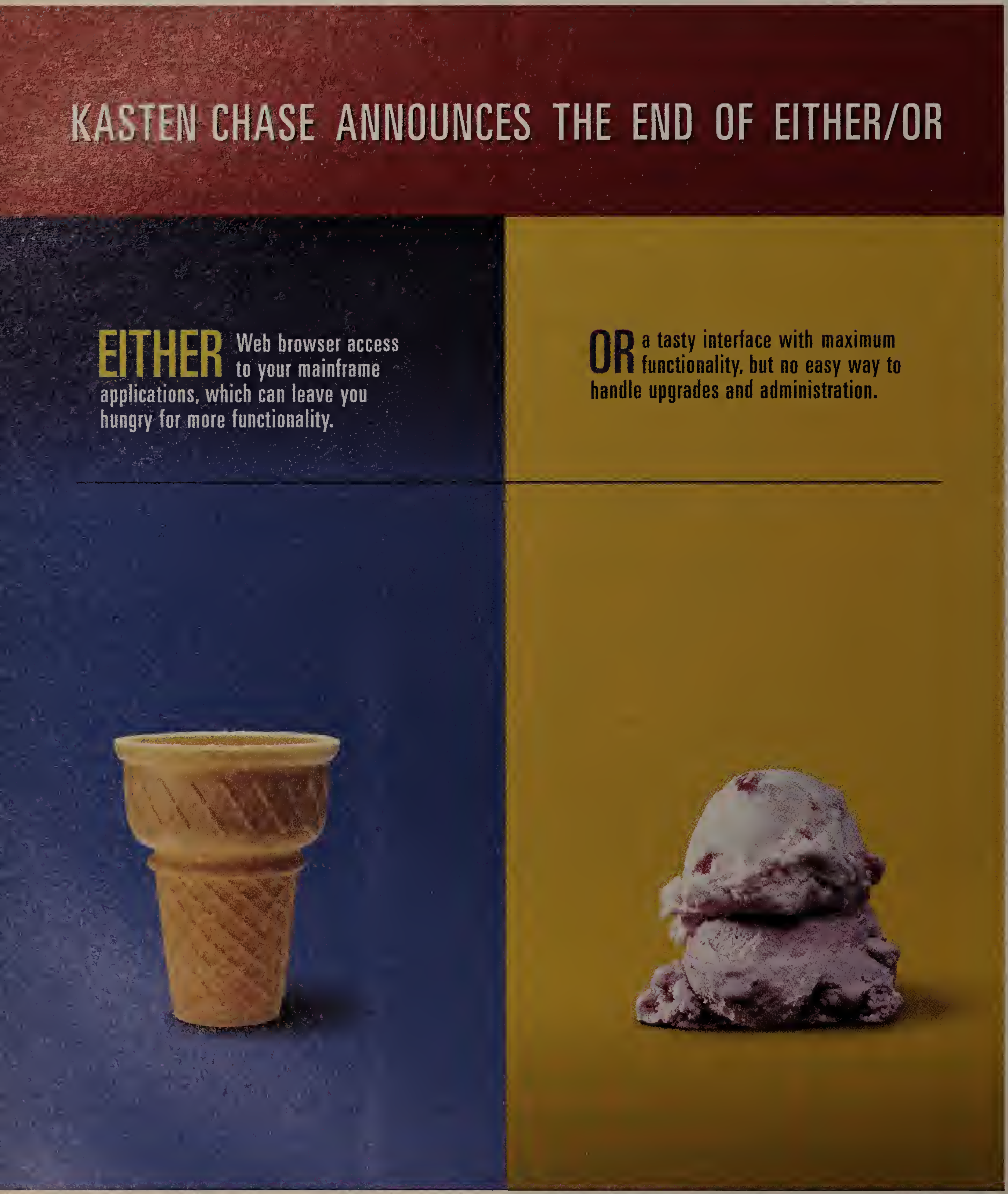
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Alcatel,
continued from page 21

Alcatel's U.S. carrier sales to $3.5 billion, Prabhu says. "In the service-provider [market], that puts us very close to Cisco in terms of revenue," he says.

Assured Access brings carrier-grade access concentrators that can take in IP and other traffic over dial-up and dedicated circuits. In combination with Alcatel's digital subscriber line (DSL) gear, Alcatel can support most services that enterprises might use to access carrier networks.

The Assured Access gear should also make Alcatel less reliant on Ascend, which is now part of Lucent. Alcatel will now sell Assured Access concentrators instead of Ascend TNT boxes.

Similarly, Alcatel's Xylan and Packet Engines acquisitions give it products to sell instead of the gear it currently resells from Cisco, increasingly a competitor.

Alcatel says its acquisitions of Xylan, Packet Engines and Internet Devices will not only let it address the needs of enterprise customers, but also meet the growing needs of carriers offering managed services.

For example, Alcatel will look to supply carriers with Xylan ATM OmniSwitches, which could be located at customer sites as part of a managed service. The devices could take in IP and other traffic from customer sites and deliver it to carrier nets via ATM pipes.

Alcatel CEO Krish Prabhu says his company will focus on carriers offering managed services.

Alcatel plans to take policy-based router and management software from Internet Devices and put it into Xylan and Packet Engines hardware. Such technology could be used by enterprises and carriers to support quality-of-service levels, Prabhu says.

Alcatel says it is not finished with acquisitions, though the pace of its purchases will likely slow.

The company needs a terabit core router, such as those made by Pluris and Nexabit, and it needs a switch that can mediate between voice and data networks, such as the gear made by Salix and Convergent, Current Analysis' Westfall says.

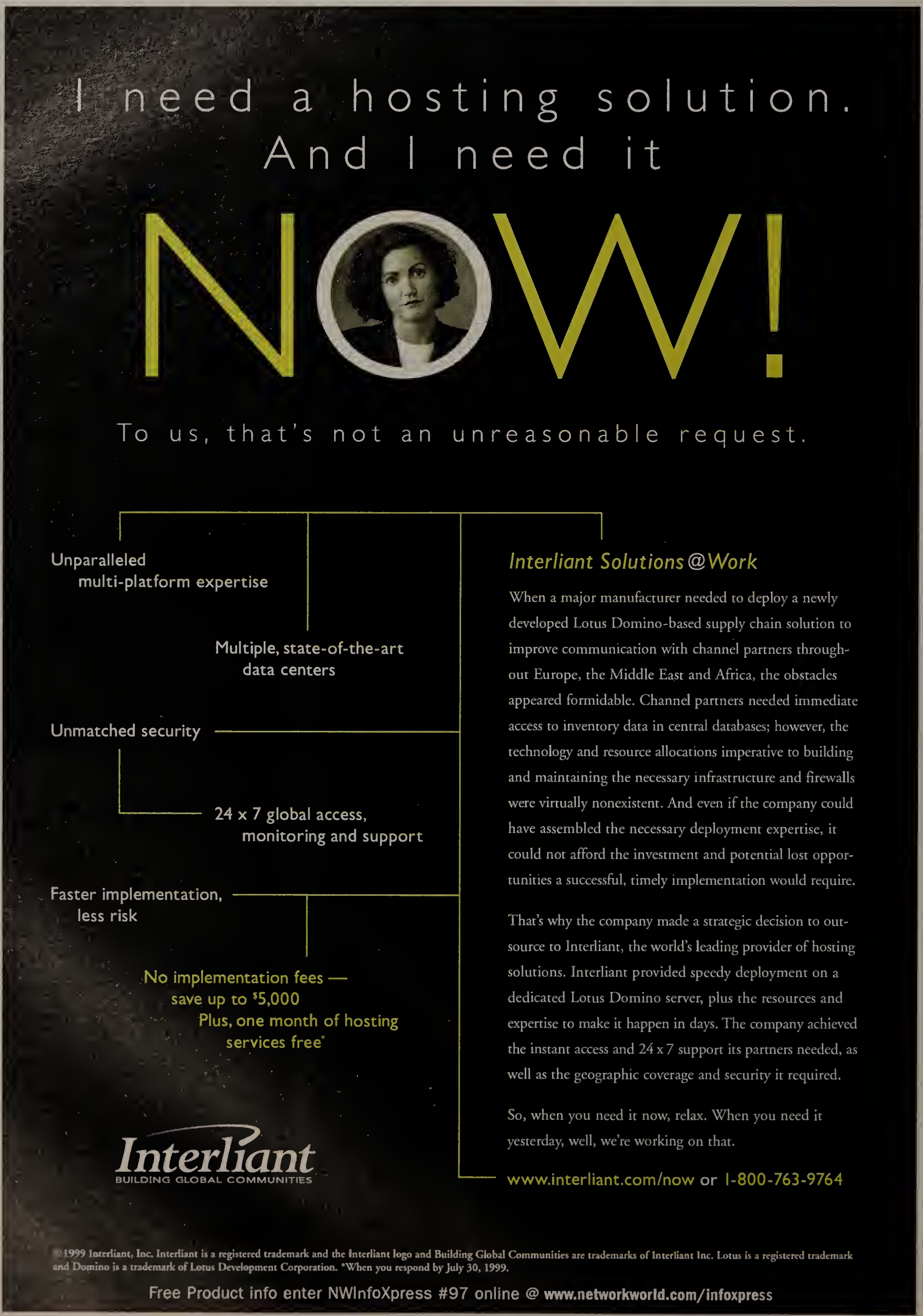
Alcatel also needs cable modem technology to complement its DSL products for widely available broadband access.

Alcatel could get that expertise by buying companies such as Com 21 or Terayon, Westfall says.

Management challenges ahead

When all its previously announced acquisitions are complete, Alcatel will have nearly 9,000 employees in the U.S. This presents a management challenge, but Alcatel's strategy is to keep those new employees, with the exception of DSC's, isolated in one division called the Internetworking Group.

"That solves some of the problem of cohesion and the problem of companies on the West Coast that are used to a start-up culture," Prabhu says. ◪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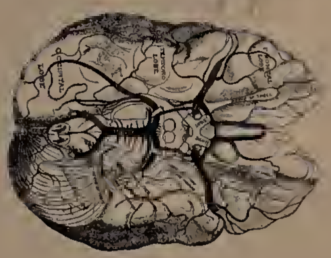

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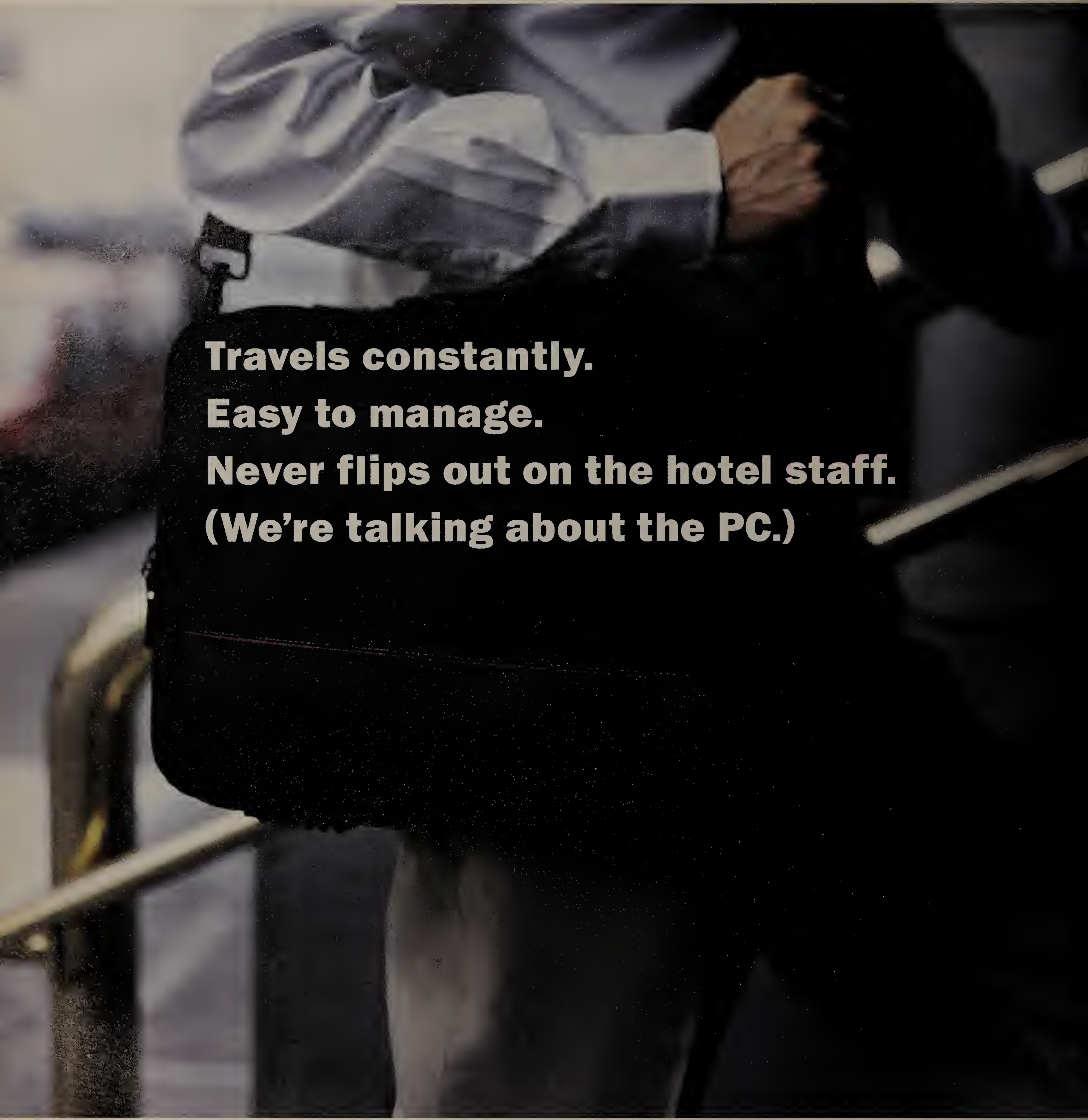
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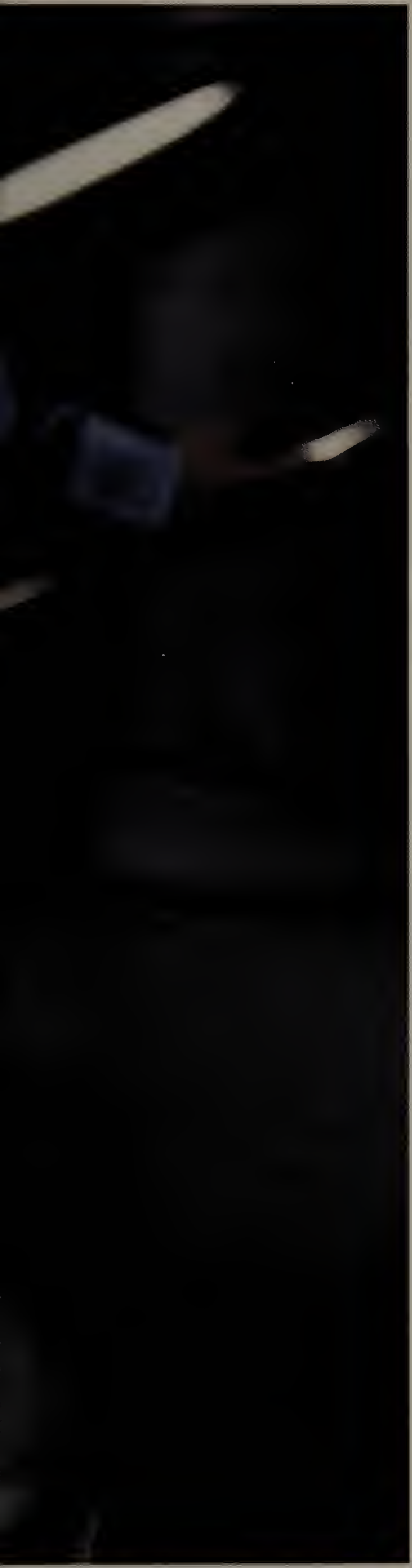

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In-Site,
continued from page 21

network with separate networks for online operations, classified ads and business operations. The switch replaced a smaller Layer 3 switch, which in turn had replaced a Bay Networks router.

The router was overworked and unreliable, and its manageability was poor, Chase says. Plus, the *Review-Journal* didn't need the full capabilities of a traditional router.

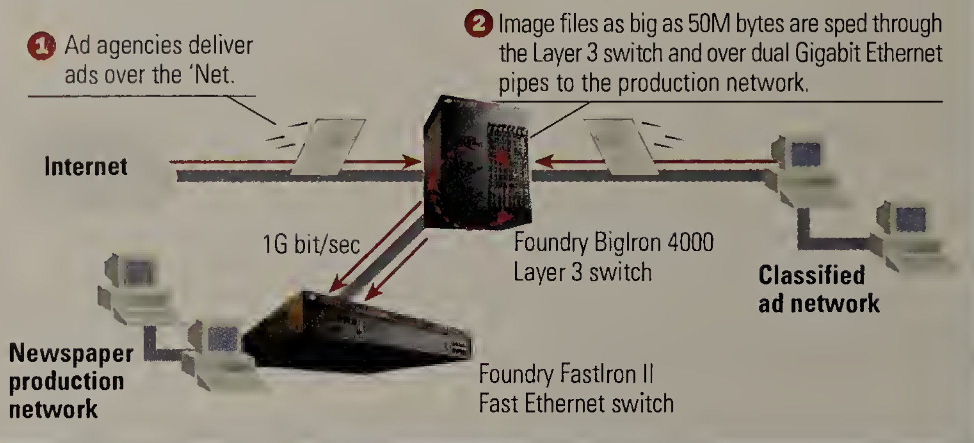
"It didn't have to have 39 protocols," says Bryn Beorse, a systems manager at the company.

Consider the Macs

The biggest requirement was AppleTalk support because the company uses so many Macs to lay out the newspaper. The company estimates that 60% of its traffic consists of AppleTalk broadcasts. Foundry's support for that protocol in its Layer 3 switches was key to the newspaper's decision to use that vendor's hardware.

Busy intersection

The *Las Vegas Review-Journal* relies on a Foundry BigIron 4000 Layer 3 switch to handle the exchange of traffic, including large image files, among its various operations. The BigIron replaced a smaller switch, which had replaced a router.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Though the company hasn't measured the increase in throughput since moving to the Layer 3 switch, network managers say users immediately saw a marked improvement in the speed at which files were transferred.

Plus, managers say the Layer 3 switch easily handles the load and is more manageable than the previous router.

But it hasn't been all roses. One side effect is that the high volumes of traffic traveling over the backbone are having trouble cramming onto slower segments of the network, Beorse says.

"I'm starting to see 10-megabit segments crying for help," he says, adding that collision rates on shared network links are approaching 5%.

Live and online

Another way the company is expanding is through its online efforts. The *Review-Journal* is home to lasvegas.com, a Web site offering news and information about the city.

The company uses just one Web server today to host the site, but it is looking into moving to multiple servers connected to a load-balancing switch.

The paper is also considering upgrading its Internet connection from two T-1 (1.5M bit/sec) lines to a DS-3 (45M bit/sec).

The T-1 lines connect to a Cisco 4000 router, but the company opted for a Layer 3 switch at the heart of the network.

"We had Cisco in here the other day. They couldn't compete" on speed and price, Chase says. ◪

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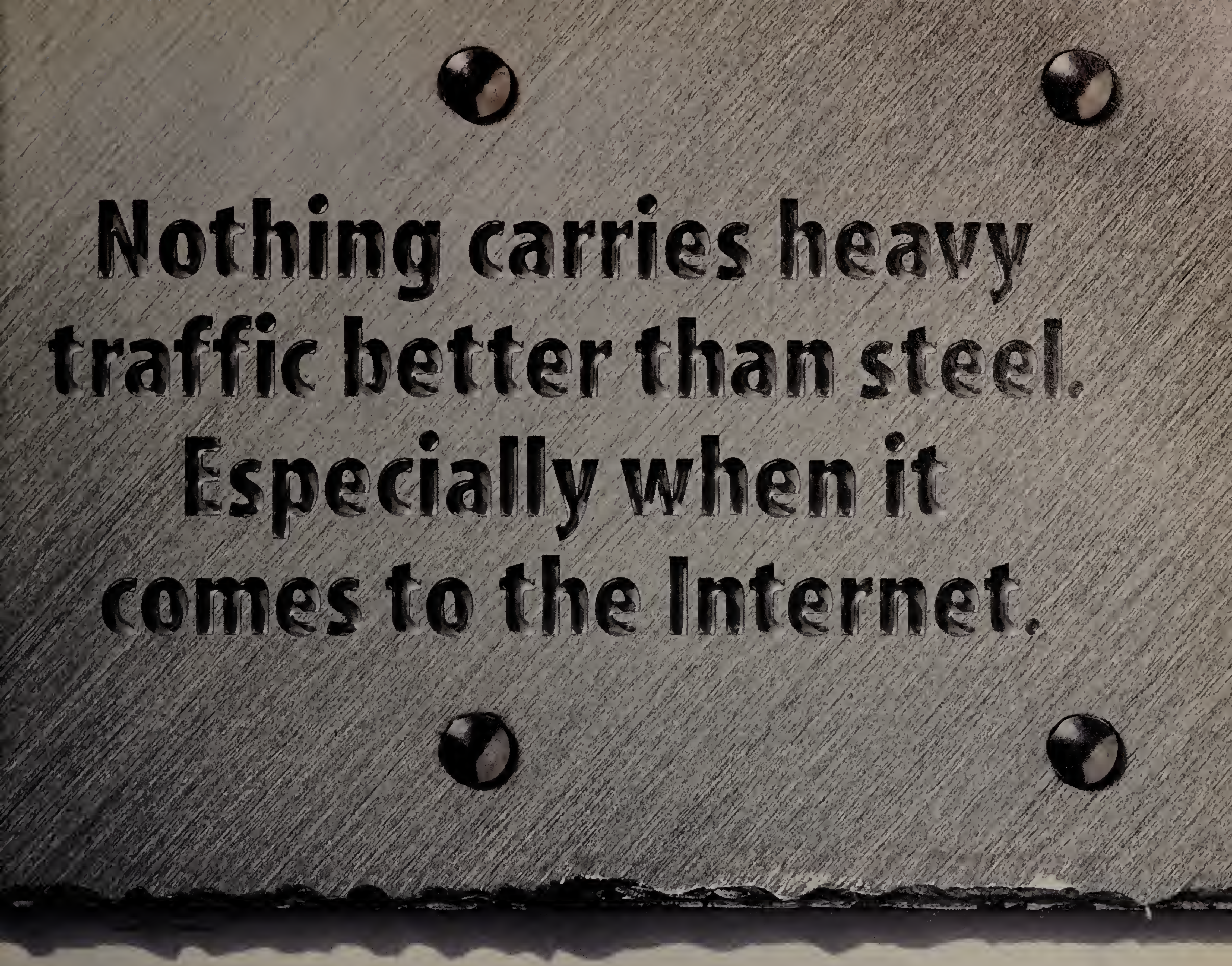
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SWITCHING CATALYST OR PASSIVE BYSTANDER?

The network industry is smarting from a lack of user-driven support. A decade ago, user groups, such as the powerful IBM Share and Digital Decus forums, provided a conduit to vendors. Cisco and other companies today have managed to avoid that same user focus.

In today's heterogeneous networked world, it's important to have an avenue in which the objective is what's best for the user instead of what's best for the vendor. Consider that largely vendor-driven standards committees are developing new specifications at a rapid pace. That means considering issues such as proven interoperability is an important matter. At least you would think so.

Search major vendor Web sites for "LAN switch interoperability" and you might get a lot of hits, but you'll find little information beyond typical marketing fluff. The fact is, network managers have no baseline against which to judge vendor claims of being interoperable with all major vendors. Each vendor has its own agenda, and it is unlikely that all vendors devote the same amount of time to ensuring interoperability.

Surely, IT and network management staff at major firms are buried just keeping up with innovations, let alone taking the lead to rally vendors around an interoperability proving ground for LAN switching. The Tolly Group and *Network World* are joining forces to sponsor a week-long study of Fast Ethernet/Gigabit Ethernet switches to give vendors the opportunity to establish the state of the art in heterogeneous nets. The aim of the study is to provide net managers with a base of authoritative, unbiased information about the interoperability of key switch products, which buyers can use to make purchase decisions.

Testing will be conducted at a dedicated facility near New York during the week of Aug. 2-6. The project will encompass mandatory and optional tests. We want to be certain that basic features are addressed across all products involved in the event. At a high level, we'll evaluate:

- Layer 2 flow control (mandatory): This test will demonstrate that a session can be established using IEEE 802.3X flow control. Participating vendors will also be required to demonstrate a gigabit uplink to another switch.
- Link aggregation (optional): We'll test the capability of participating switches to aggregate links between switches. Likewise, vendors will be invited to test "accelerated convergence" for Spanning Tree, in order to demonstrate that any acceleration mechanisms work between the devices under test.
- Layer 3 Routing Information Protocol (RIP) and IP (mandatory): Testing will demonstrate routing table information exchange using RIP and IP.

Results of the study will appear in *Network World* and on the Tolly Switch-Central Web site, and will be presented at a high-profile session in September at NetWorld+Interop in Atlanta. But we need your help, too.

Tell your vendors you want them to participate in this groundbreaking study. Send a message that switch interoperability is a condition they need to prove.

Tolly is president of The Tolly Group, a strategic consulting and independent testing firm in Manasquan, N.J. He can be reached at (732) 528-3300, ktolly@tolly.com or www.tolly.com.

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Carriers & ISPs

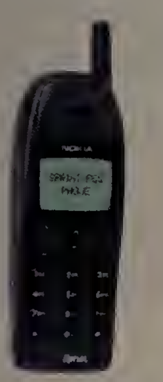
The Internet, Extranets, Interexchange and Local Carriers, Wireless, Regulatory Affairs

Briefs

MCI WorldCom last week took a 38% equity stake in mobile data provider **Metricom**. Metricom's Ricochet service provides Internet and corporate net access via a laptop-attached wireless modem that connects to shoebox-size radio transceivers in the Metricom network. Available now at 28.8K bit/sec, Metricom is shooting for a mid-2000 introduction of 128K bit/sec service in major metropolitan areas. MCI WorldCom is poised to serve as distributor. Venture capital firm Vulcan Ventures is taking a 49% stake, with the rest of the company's shares traded on NASDAQ.

Metricom: www.metricom.com

Sprint PCS is preparing to offer its wireless customers data services by year-end. Sprint PCS last week announced a deal valued between $360 million and $500 million with **Nokia** to offer Sprint PCS customers Nokia phones. The phones will let Sprint PCS customers browse the Web and download e-mail, files or daily news items. Sprint PCS will announce more detailed wireless data services by year-end.


Nokia phone provides data services.

Sprint PCS: www.sprintpcs.com/>www.sprintpcs.com

Computer Associates last week signed a deal with **Fiberlink Communications** worth more than $1 million for dial-up services. CA users can now dial in to more than 3,100 Fiberlink Global Remote point-of-presence sites around the world.

Fiberlink: www.remoteaccess.com/>www.remoteaccess.com

UUNET to boost IP services with MPLS

BY DENISE PAPPALARDO

FAIRFAX, VA. — UUNET is adding new technology to its network that promises to reduce network overhead and provide customers with better quality of service.

In the next two months UUNET, MCI WorldCom's ISP business, is expected to deploy IP Multi-protocol Label Switching (MPLS) to its network backbone. The switch to MPLS is expected to make UUNET's current OC-48 network more efficient, says Jeff Sturgeon, vice president of marketing at UUNET, MCI WorldCom's wholly owned subsidiary.

MPLS is an Internet Engineering Task Force (IETF) technology that will let service providers and business users more efficiently route IP packets over their networks. Instead of including information in the header of an ATM cell, which eats up precious bandwidth, MPLS uses labels or tags to identify where IP traffic should be sent. These tags are designed to speed the routing process while sending traffic along the most efficient paths across the network.

> **"MPLS eliminates the cell tax that goes along with an ATM backbone."**
>
> Jeff Sturgeon, vice president of marketing, UUNET

To date, AT&T is the only other service provider that's talked about supporting MPLS. The carrier uses MPLS in its AT&T IP Frame Relay service. While MPLS promises better, smarter routing with less overhead, no service provider has deployed the technology on a network that supports thousands of users, says Lisa Pierce, director of telecommunications services at Giga Information Group, a Cambridge, Mass., consulting firm.

UUNET believes the technology will scale, but is conservatively deploying MPLS devices along side its existing ATM network in case there are problems.

And multivendor interoperability is still a question, Pierce says. Service providers that rollout the technology as early as this year will most likely be tied to a single vendor's products because the IETF specification is so new and few have implemented it, she says.

UUNET will be installing MPLS hard-

See **UUNET**, page 34

Telcordia introduces new test to speed DSL deployment

A modem call determines if a phone line can be a DSL link.

BY TIM GREENE

MORRISTOWN, N.J. — Telcordia has a cure for one of the big digital subscriber line headaches: determining if your phone line can handle DSL.

The company this week will introduce a new service called Sapphyre Loop Qualification Service. The service determines within 5 minutes whether a phone line can handle the digital access technology and the maximum DSL speed the line can handle.

To make those determinations, Sapphyre analyzes the data it gathers from modem calls between the customer site and a Telcordia server. Telcordia says its reading of the lines is 99% accurate.

"If this thing works as advertised, it will be a serious, serious boon [to DSL deployment]," says Mike Lutz, director of product evaluation for DSL provider Darwin Networks.

Trying to determine whether your line supports DSL can be a headache, according to Keith Waldorf, a DSL customer and partner in Web Illusion, a Web design firm in Santa Clara, Calif.

He says some service providers have to send technicians to customer sites to determine if the loop is qualified, while others rely on databases that are not always accurate.

"Even if they work, it doesn't tell you what speed you could get," Waldorf says.

US West !nterprise, for example, has MegaWOT, a database customers can check to see if service is available in their areas and whether their lines can handle DSL. But that qualification is based on maps and records about lines, not a live test.

"The problem [with using maps] is you don't have a real-time measure of the capabilities of the line," says Mike Rouleau, vice president of marketing for US West !nterprise.

Some lines that MegaWOT might reject could be borderline and might actually support DSL, Rouleau says. !nterprise is aware of Sapphyre and weighing whether to use it, Rouleau says.

For the past year, GTE has used its own Digital Services Testing System (DSTS) that combines checks of phone line databases with tests of the line to determine qualification. GTE claims 99% accuracy for the DSTS, but some lines still need technicians to physically check the line.

In addition, some carriers determine whether lines qualify for DSL based on wire length, which Lutz says is not the most accurate way to determine if a line

See **Telcordia**, page 34

More Online

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- **See the problems some early DSL adopters have encountered.**
- **Read up on DSL interoperability issues.**

UUNET,

continued from page 33

ware that in many parts of its network will displace the ISP's existing ATM devices. But Sturgeon says that ATM will still have a place in its network. While UUNET would not yet say which vendors' products it will use, UUNET's current ATM vendor FORE Systems later this year is coming out with MPLS support.

UUNET will roll out MPLS in the core of its network first, where the technology will run parallel with UUNET's ATM backbone, Sturgeon says.

UUNET was never big on ATM because of the technology's overhead, which is often called a "cell tax." This overhead eats up more bandwidth than frame relay or IP. But due to UUNET's growth in the last three to four years the company was forced to add ATM because ATM supports higher speeds than frame relay — UUNET's sole backbone technology until a few years ago.

While UUNET's research and development folks are busy testing MPLS devices and mapping a deployment strategy, the ISP has been bringing its DSL service to market. And surprisingly UUNET's DSL service support is ahead of schedule, according to Sturgeon.

This week the service provider is expected to announce its UUlink DSL service is available in 12 cities. The company also said it had met its previously announced goal of 1,000 DSL-equipped points of presence by year-end.

UUNET has also been putting much effort toward its dial-up virtual private network services (*NW*, June 21, page 1).

The ISP is adding director services, IP Security and public-key infrastructure support to its UUdial services over the next few months.

UUNET: www.uu.net

Telcordia,

continued from page 33

qualifies. A carrier might disqualify loops longer than 15,000 feet, for instance, but an individual 18,000-foot phone line might support DSL depending on the links' individual characteristics, Lutz says. Between 20% and 25% of lines fall into the category of being DSL-capable but outside a 15,000-foot cutoff, he says.

Sapphyre works like this: Interested DSL customers contact the Web site of a DSL service provider to download Sapphyre Loop Qualification software. The software has the customer PC make three modem calls to a Telcordia server. The server analyzes the handshake between the customer's modem and gathers data about echo response, frequency response and packet loss measurements.

Using patent-pending algorithms, the server crunches the handshake data and determines if the line has the characteristics to support DSL. The tests also determine whether the line has load coils — devices that keep voice calls from dying out on long wires and that disqualify a line for DSL.

Sapphyre is available now to service providers. Telcordia says it has customers but declined to name them. The company also declined to say what it would charge carriers for Sapphyre and says it will be up to DSL service providers to decide whether or what to charge customers.

Telcordia is the former Bellcore, which did research and set standards for the regional Bell operating companies.

Telcordia: www.telcordia.com

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Eye on the carriers . **David Rohde**

THERE'S A RUMBLE ON THE ROOFTOP

Recently, many readers have written in about the controversial "rooftop rule" the government is considering.

The rooftop rule is a new local-competition proposal from the Federal Communications Commission. The FCC is considering requiring multi-tenant office buildings to provide space on their rooftops to new fixed-wireless local loop carriers. Those are companies such as Winstar, Teligent and Nextlink that use chunks of microwave spectrum to create connections from office building antennas to long-distance points of presence, bypassing the dominant local telcos.

So far, reader comments are running about 75% to 25% against the rooftop rule. Maybe that seems strange because the rule would purportedly help users glean carrier options more quickly. But there are some logical reasons for this reaction.

Winstar and Teligent, which have lobbied heavily for the proposal, claim many office buildings have sweetheart deals with the telcos and that building owners have demanded impossible terms to allow them access. Yet at the same time, Winstar and Teligent have been announcing deals with other building owners that they proudly tout to investors as signs of their success.

For years, landline competitive local exchange carriers (CLEC) have acknowledged that local market entry is a building-by-building slog and have not insisted that the FCC step in. Last year, leading CLEC Intermedia bought a company that specializes in shared-tenant telecom services to boost its presence in that market.

Then there's a telling statement in a building-access white paper that the Personal Communications Industry Association (PCIA), a wireless trade group, presented to the FCC. PCIA noted that telecom options are merely one among many factors that influence the signing of a long-term lease, so users might not move to a new building just to get wireless local loop. True enough.

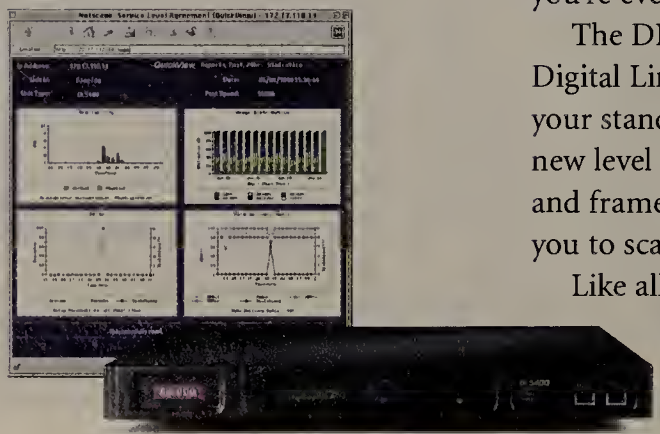
But then PCIA added: "Small and medium-size tenants for the most part have never experienced these services, so the idea that they would, in significant numbers, break a lease [to get wireless local loop] is unreasonable." In other words, it's unfair that users can't get a service *they don't even know they want yet,* so the government had better act.

If the FCC buys this argument, it's coming dangerously close to something this column has noted before: confusing a real competitive barrier with somebody's marketing problem.

A couple of readers pointed out another potential problem: The FCC will have to define exactly what it means by a multitenant building. Some such buildings are owned by their primary occupant — say a regional office of a multinational manufacturer — which may rent out the remaining space to local businesses.

If the FCC multitenant rooftop rule applies to these buildings, then the FCC would be in the position of telling *users* which carriers they must deal with. Isn't that the opposite intent of telecom reform?

Rohde is a senior editor with Network World. *He can be reached at drohde@nww.com.*



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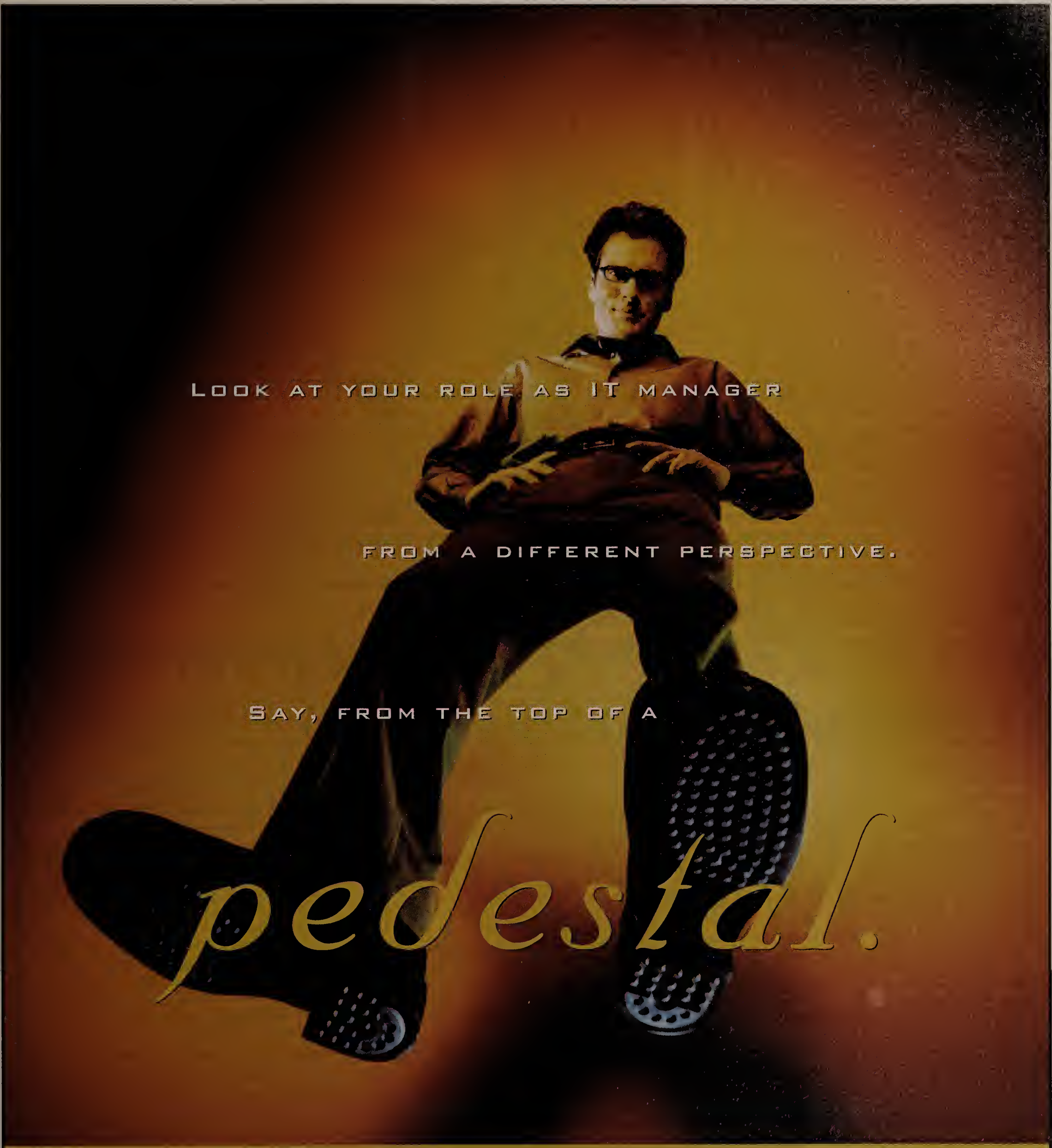
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Is Qwest losing its IP religion?

BY DAVID ROHDE

Take everything you think you know about Qwest and turn it upside down. Here is an organization that calls itself "the Internet communications company" but is actually building a customer base on the back of frame relay and old-fashioned voice circuit switches.

Here is a carrier that is gunning for multinational corporations, yet it is filling its network with a sizable base of small and midsize enterprise network traffic.

Here is a company that is promising middleman-eliminating electronic commerce packages, yet whose own business model relies largely on recruiting value-added resellers (VAR) and other resellers.

Qwest hasn't allowed its vision of broadband IP networks to stop it from gaining traffic and customers any way it can. Perhaps more than anything, that drive explains Qwest's recent decision to bid for US West — the prototypical legacy carrier. Experts aren't wild about that offer, which has faltered as Qwest's stock price has dropped the past two weeks. But experts do credit Qwest with speeding ahead of Level 3, Williams, Global Crossing and many other new telecom players in making a dent in the enterprise network services market. The company has done so by being open to possibilities — and getting the spadework done to have a network to carry whatever traffic it can grab.

"Qwest is way [ahead] in terms of building the network," says Christopher Mines, an analyst with Forrester Research. "If it could stay focused on a strategy," Qwest has a chance to enter the pantheon of leading carriers to compete with AT&T, MCI WorldCom and others.

Take voice traffic, for example. Qwest doesn't talk about it much — or at all — but in addition to its Cisco-based IP net and Ascend frame/ATM network, Qwest also has several dozen Nortel Networks DMS 250 long-distance switches. These are the same kind of switches used by the legacy long-distance carriers.

When Qwest burst on the scene in late 1997, it hyped a consumer IP telephony service called Q.talk that offered Internet telephony for 7.5 cents per minute. But that was when consumers were paying 15 cents per minute on AT&T's One Rate plan. Now you can barely find Q.talk mentioned on Qwest's Web site; company officials say they're still supporting existing customers but are not marketing the service.

Instead, they're promoting Q.home — an ordinary circuit-switched service — at either 9 cents per minute or, for a $14.95 flat monthly fee, 5 cents per minute. "The core product is a circuit-switched product because that's where the majority of the market is," says John Taylor, senior vice president of consumer markets.

Lacking the assets

Inexpensive long-distance illustrates one of the key factors that has led Qwest to crash the enterprise market ahead of Level 3, Williams and the rest: its successful 1998 acquisition of LCI International, a rather traditional domestic long-distance carrier. LCI's top two executives eventually left the firm, but Qwest was remarkably successful in retaining the next layer of product and marketing executives.

NEXT-GENERATION CARRIERS

The carrier has moved to the head of the pack by putting all kinds of traffic on its net.

This was key because LCI was the only U.S. carrier other than the Big 3 to offer a business-class voice virtual private network service akin to AT&T's Software Defined Network -- even WorldCom didn't have such a product before it merged with MCI. Now called Qwest VNS, that voice network product plays a role in almost all customer voice/data network contract deals. Plus, LCI provided the basic frame relay net — which at the time was migrating from a Newbridge to Ascend frame/ATM platform — that also has figured in most of Qwest's recent enterprise deals.

In fact, for all his bravado, Qwest CEO Joe Nacchio is one of the least prideful telecom executives when it comes to admitting that his company needs to look elsewhere for assets and expertise. Example: Last week Qwest signed a joint venture deal with IT consulting kingpin KPMG to form Qwest Cyber.Solutions, essentially an application service provider outsourcing firm — 51% owned by Qwest and 49% by KPMG.

"While we have the physical assets, the missing element is where do you get the professional skills to get people to support the applications in the CyberCenters?" Nacchio says. The venture will include 450 KPMG software engineers who specialize in enterprise resource planning and customer-relationship software packages. Qwest's sales channel may make the initial contact, but "they'll fall back on the specialists in order to close the relationship," says John Charters, a Qwest vice president who will be the joint venture's CEO.

Looking for help

KPMG is hardly the only place Qwest is looking for help, having signed about a dozen recent deals for help in operating software, applications and broadband local loops (see graphic). Qwest has even turned to non-network organizations for marketing help in affinity deals. While some of its next-generation telecom rivals have turned up their noses at small and midsize enterprises as too expensive to serve, Qwest has raced to sign up business users who belong to membership groups, such as the American Hospital Association and the Remax real estate company.

Qwest also is going to want to have the resellers sell Web and application hosting out of its so-called CyberCenters, obtained in a recent acquisition of ISP and hosting company Icon CMT. Qwest officials like to say they have seven CyberCenters, but right now they only have three up and running — in Weehawken, N.J., Denver and San Francisco. Qwest is racing to open two more in California — in Burbank and Sunnyvale — by July 1.

That push helps explain why Qwest is not only bidding for US West but also Frontier, a long-distance carrier that owns GlobalCenter, which is a Web-hosting specialist with 11 sites around the country. Speculation has run rampant that Qwest might forgo Frontier for US West in negotiations with Global Crossing — the other company now bidding for the US West-Frontier package. ◪

A lot of moving parts

Even if it wins its bids for US West and Frontier, Qwest will still need a host of other partnerships to work in order to become an end-to-end IP applications provider:

Company	Investment or relationship	Purpose
BellSouth	BellSouth bought 10% of Qwest's stock	Local sales channel once BellSouth enters long-distance
Covad	Qwest bought $15 million of Covad's stock	Digital subscriber line (DSL) local access in 22 markets
Hewlett-Packard	HP will provide $500 million in hardware, software and services to Qwest CyberCenters	HP to get cut of monthly fee revenue based on CyberCenter usage
Icon CMT	Qwest acquired for $185 million	Now called Qwest Internet Solutions; provides Internet backbone and CyberCenter hosting sites
KPMG	Joint venture called Qwest Cyber.Solutions	Configuration and application-support-outsourcing contracts
KPN (Dutch national carrier)	Joint venture called KPNQwest	Pan-European fiber network covering 39 cities
Microsoft	Microsoft invested $200 million in Qwest	To jointly provide Web application hosting, streaming media and virtual private network services
Netscape	Strategic alliance	Qwest provides telephony and other offers at Netcenter portal
Oracle	Strategic alliance	Oracle Business OnLine customers to be hosted at Qwest CyberCenters
Rhythms	Qwest bought $15 million in Rhythms' stock	DSL local access in 31 markets
SAP America	Strategic alliance	Qwest to host SAP's R/3 software suite as application service provider
Siebel Systems	Strategic alliance	Qwest to distribute Siebel's Sales for Workgroups to small and midsize businesses

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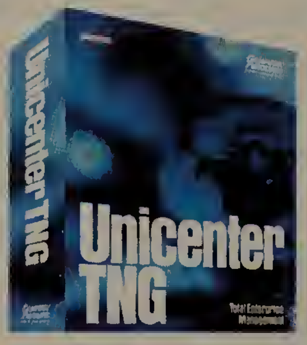

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Enterprise Applications

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Briefs

Calico Commerce of San Jose last week announced the addition of eSales Loyalty Builder to the company's eSales Suite of applications. The applications help companies provide Web customers with personalized buying.

The Java-based Loyalty Builder guides customers through the purchasing process from initial interest to order placement, and also allows for future interactions with the customers.

Also included in the upgrade are a new Software Developers Kit and eSales Enterprise Connectors that allow the suite to be integrated with a company's existing front and back office systems.

IBM has released an initial version of its upcoming Linux Developer Kit for Java. Programmers can use the kit to write Java applications that will run on Linux computers.

Linux Developer Kit is available at IBM's alphaWorks Web site, www.alphaworks.ibm.com/tech/linuxjvm.

The tool set includes a Java Virtual Machine and IBM's Just-In-Time Java compiler, and supports Sun's Java Development Kit 1.1.6. Comments from developers using this "alpha" version will be incorporated in a final version, which will be based on Java 1.2. No specific release dates have been set.

Reuters has invested an undisclosed amount of money in digital rights management company **Reciprocal.**

The company has agreed to use Reciprocal's technology to protect Reuters content as it is distributed over the Internet.

Reciprocal also launched a publishing arm to help content companies exploit Internet opportunities.

Exchange tackles more than messaging

Platinum release makes server a critical Windows file storage system.

BY JOHN FONTANA

When IS pros think of Microsoft Exchange, one thing usually comes to mind: messaging. But that is the old Exchange. The new Exchange, coming on the heels of the release of Windows 2000, will be a general-purpose file storage system that supports universal client access.

A recent set of announcements from the Redmond, Wash., company shows that Platinum, the code name for the next release of Exchange, will not only be a messaging server, but also a core file system for Windows 2000 and a broad-based application development platform.

> **"Platinum really is a radical shift . . . What Microsoft envisions is Platinum as a single point of access."**
>
> Nathaniel Palmer, analyst, The Delphi Group

CHRISTOPHER FITZGERALD

Platinum will also serve as a back-end document warehouse, housing files created by Office 2000's collaboration features.

Meanwhile, according to Microsoft, the platform will act as a highly indexed and searchable Web server that supports HTML and XML as key document structures.

To foster universal access, the server will support HTTP, Microsoft's Mail API and Server Message Block, which even allows access to Platinum from a DOS prompt.

"When Bill Gates said a few years ago that Microsoft almost missed the Internet, well, this is the first release of Exchange that represents that shift in direction," says Greg Scott, IS manager for Oregon State University College of Business. Scott has been testing the Web Store and Platinum code for nearly a year. "With Platinum, we see a fairly important clue to where Microsoft as a whole is headed."

Platinum is expected to ship 90 to 120 days after Windows 2000, which is expected to be available by year-end.

Scott says Platinum has changed the way he thinks about data: "Among other things, you can make Platinum look like an NT File System, but you

See **Exchange**, page 44

The new Exchange

Microsoft recently revealed that the next version of Exchange will include Web Store. The store will let the server act as a universal repository and file system for Windows 2000. A number of other features are also being added to the server to transform it into a key piece of infrastructure for Microsoft's knowledge management framework.

Feature	Capabilities
Web Store	Consolidates file, messaging, Web server data
HTTP support	Supports access from browsers, Internet devices
HTML, XML support	Document structures support access, indexing, searching
EXIFS file system	Kernel mode operation moves objects in and out of data store
Grizzly	Graphical tools build workflows across Exchange, SQL Server
Tahoe	Server-side services allow document management

Peeking into performance

BY JEFF CARUSO

To help network managers better gauge the performance of their business' transactions, International Network Services (INS) last week released a new version of VitalSolution, its performance management software.

The new version requires that network managers define a business transaction in terms of user actions, network traffic and application activity. Once that is done, Version 3.0 of VitalSolution measures transaction performance and can help managers pin down any problems.

The software is a good tool to give users an idea of how fast they can expect their transactions to be, says John Corbett, vice president of IT at New England Financial in Boston.

The company is using INS' product to measure the response time of its call center application running locally before moving some users to a remote office.

"People think that the local response time is the fastest response time they're going to get," Corbett says.

As a result of this attitude, users may think the response time in a remote office is slower, even when it isn't, he says. VitalSolution gives the company a way to get hard numbers on performance.

Like other performance measurement products from rival FirstSense Software, VitalSolution 3.0 uses screen cues to determine when a transaction

See **INS**, page 46

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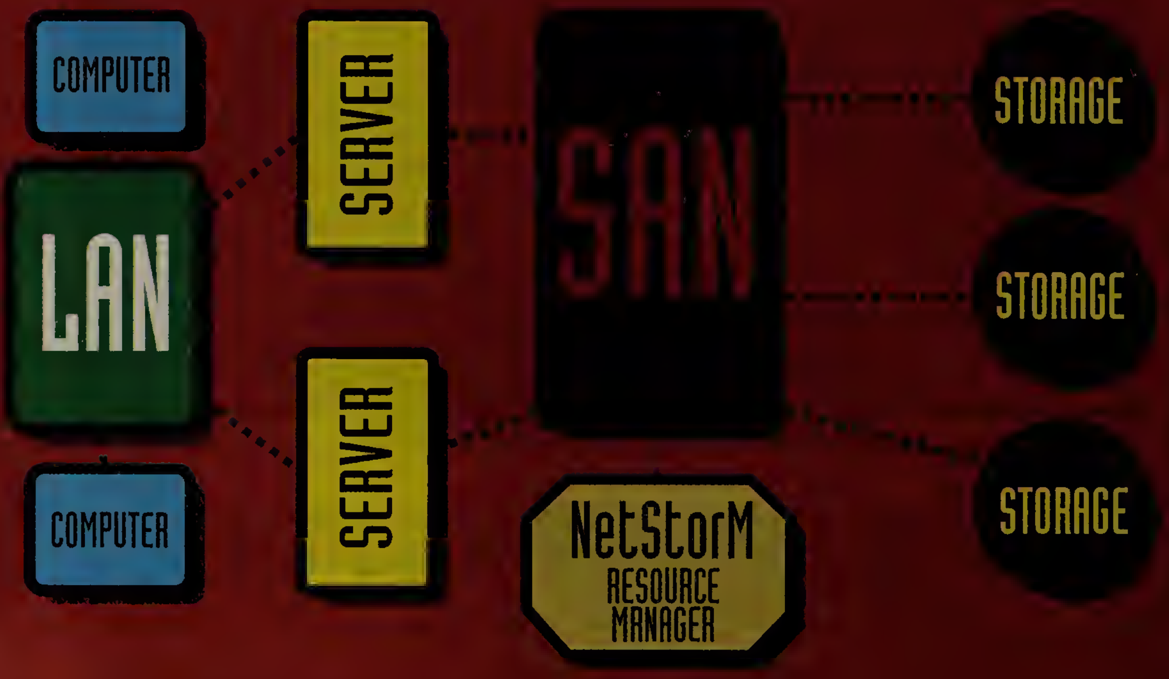

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It's a dog's life at Internet start-up ArsDigita

BY SANDRA GITTLEN

CAMBRIDGE, MASS. — It's midday on one of the first brilliant days of summer, and Philip Greenspun is walking his dog, Alex, along the Charles River. He's dressed in a polo shirt, jeans and sneakers. His cell phone, which hangs lazily from his belt, is silent for the duration of his walk.

In fact, there is little about Greenspun's laid-back attitude to indicate that he is the hard-charging CEO of a multimillion-dollar Internet start-up.

Even back at the Cambridge headquarters of his company ArsDigita (Latin for "Digital Arts"), a Web-server setup and hosting firm, Greenspun hands out direction to his programmers with an even tone, stopping midsentence to toss a ball to Alex.

There is nothing frenetic about the pace in this house that serves as a renovated office for the 20-person team, which supports the Web sites of such giants as Levi-Strauss, Hewlett-Packard, CNN, MIT and CalTech.

Greenspun says the secret to his calm success is simple: Nothing fancy and nothing Microsoft.

The company builds Web sites from the ground up using a cookie-cutter approach that includes such tools as HP-UX, Solaris, Oracle databases and America Online's Web server, AOLserver. Greenspun says he would use Linux, but when he started the company with some friends in 1994, the operating system was not well-known or widely used.

Greenspun has built more than 200 Web sites and is author of *Philip and Alex's Guide to Web Publishing.*

The only time he lets his programmers use the "M" word is when they are testing their Web site projects for WebTV. Otherwise, he shuns the software giant. "NT just won't stay up; it just hangs there," he says. "Microsoft doesn't make anything that's simple or reliable, so there's no room for them in our world."

ArsDigita leaves content to the client and the IP pipe to national ISPs Exodus and above.net, letting programmers concentrate on the platform, operating system and applications.

For instance, if Levi-Strauss wanted a new Web site, it would contract ArsDigita to build the servers and set them up at the ISP. Levi-Strauss would then hire the company on an ongoing basis for services such as monitoring, usage tracking, electronic commerce and site management.

ArsDigita guarantees a two-hour response time for downed servers. But Greenspun says he rarely needs to enforce this because of the company's choice in products.

Philip Greenspun (with his dog, Alex) has two rules at ArsDigita: Nothing fancy, and nothing Microsoft.

Some might find the choice of AOLserver surprising, but Greenspun notes it's what AOL uses to serve its 17 million users. "I tell customers [concerned about our tools], 'When you have more users than that, we'll worry,' " he says.

In addition to setting up Web servers, ArsDigita has developed a tool kit, based on open source resources such as Perl, that includes modules for visitor tracking, back-end administration, site management, bulletin boards and e-commerce. Because it is based on open source, ArsDigita encourages users to download and play with the code for free. This lets users design applications they really want — and gives ArsDigita a ready source of improvements to the tool kit.

Greenspun says ArsDigita's standardization can dramatically save time when setting up a site.

"We save customers about six to nine months in getting launched," he says, while relaxing in an office rocking chair. He claims the company can get a site up for less money than it would take clients to do the job.

"They don't have to decide between NT and Unix or Informix and Oracle. We've made that decision for them based on our experience," he says.

Also key is networking — with people. "If we want to install a load-balancing switch, we could do two months of benchmark testing," he says. "Instead, I call up my friend at CNN.com, which gets millions of hits a day, and ask him what he's using."

Greenspun recently kicked the company into high gear and hired more than a dozen programmers; he is considered an Internet pioneer. He was one of the first to publish a full-length novel solely online and his photo.net Web site was one of the first successful online communities for photographers. He also teaches the only course on Web development at MIT.

Now he is focusing on expanding ArsDigita, which includes moving out of the company's cramped quarters in Cambridge to a building near MIT. He bought the building outright because of Alex. Cambridge landlords, it seems, have tough rules regarding dogs residing in leased spaces. ◪

Exchange,
continued from page 41

have all these rich tools like indexing and searching. We call it the developer's release since it is designed to be the back end for applications."

Pretty on the inside

Microsoft has done a lot of reworking at the core of Exchange. The software giant is adding an NT file system called EXIFS that runs in kernel mode and can move objects in and out of the data store with various protocols. Microsoft also is developing workflow and document management tools.

"Platinum really is a radical shift," says Nathaniel Palmer, an analyst with The Delphi Group. "What Microsoft envisions is Platinum as a single point of access."

HTTP support is key because it gives every object in Platinum a unique URL, which eliminates the need for scripting to extract objects. The protocol also means Internet devices, from cell phones to personal digital assistants, can connect to Platinum for back-end services.

The range of new capabilities expands Exchange's features so dramatically that Microsoft believes some will use Platinum without ever invoking its messaging services.

The key developments in Platinum center around its recently announced Web Store. The store can contain documents and objects that previously were stored on file, messaging and intranet Web servers.

The centralized storage of the objects is intended to create a development platform for collaborative applications. Microsoft's FrontPage and Visual InterDev will be the tools of choice, according to Kevin Breunig, group product manager in the applications and tools group. "A key goal with Exchange is to make it more collaborative so you can build collaborative applications on top of it," he says.

A set of tools for Office Developer — code-named Grizzly — allows workflows to be devised that use Platinum and SQL Server, the two core storage repositories for Microsoft's knowledge management framework.

Grizzly is expected to be available the second half of this year.

The revamped Exchange is very similar to what Lotus has done with Notes in creating a centralized store of data that is available to application developers.

"Notes is aware of objects stored within it and can use many applications to read those objects," says Tim Sloane, a research director at Aberdeen Group. "Microsoft understands that capability, and the Web Store is part of that realization."

On top of all that, Microsoft is developing a set of server-side services called Tahoe that will allow for basic document management features including check in/check out, versioning and search capabilities. Tahoe has yet to enter beta-testing.

Russ Stockdale, director of server applications, says the point of the new features is to "make Exchange the back-end home for communication devices." Key applications include Office, e-mail, voice mail or fax. ◪

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IN-SITE: *Lessons from Leading Users*

Finance firm just says no to Microsoft

BY JOHN COX

Instinet Corp. wants to exploit a trillion-dollar financial market, and to do that it needs "information at your fingertips," as Microsoft Chairman Bill Gates so often puts it.

But Instinet will be using Java and Unix instead of Microsoft products to meet that Gatesian goal. A London-based subsidiary of Reuters Group, Instinet is a major player in the global equities market. The company combines its technology for tracking the market and executing trades with platoons of brokers who can offer background and insight that computers still can't match.

Now Instinet is creating a new electronic brokerage system that will let customers, such as investment banks, trade in fixed income securities, such as government bonds. Instinet executives estimate this global market is in the trillions of dollars.

But such a computerized trading system faces big challenges. It has to be able to grow very large, very quickly. It has to be bulletproof — always up and running. It has to be adaptable, so Instinet can quickly add or drop products and upgrade applications and hardware. Response time, over a global WAN, has to be subsecond because every one of Instinet's customers has to see the same information at precisely the same time.

The MIS group, led by Chief Information Officer Rachel Mosley, decided a year ago to base the new Instinet Fixed Income system on Reuters' WAN backbone, massive Unix servers from Sun, the Oracle8 Parallel Server database, and a group of middleware products — many of which were incorporating Sun's Java APIs and services.

Instinet also wanted vendors that were aggressively adopting Sun's recently released Java 2 Enterprise Edition (J2EE), which integrates all the key APIs for distributed applications, says Duncan Johnson-Watt, head of development for the fixed income group.

"Initially, we had to build some of the features now found in J2EE," he says. "What's important to us is the business logic. We don't want to support vast amounts of custom code."

Java provided an object-oriented programming environment and a complete component model (Enterprise JavaBeans), both of which have been winning support from key software vendors.

With JavaBeans, Instinet could write reusable components, add more of them to the PowerTier server to handle user and transaction growth, and change components quickly as the market required.

The core system, at New York and London data centers, is a pair of Sun's most powerful Unix server, the E1000, running Sun's Solaris 2.6 operating system. These servers host the Oracle8 Parallel Server database, which handles data management for the entire system. Trade transactions are processed by Persistence Software's PowerTier 5 application server, which runs on the central core system and on Sun servers that will be installed at customer sites. PowerTier 5 creates a series of replicated caches, in RAM, on all participating application servers. All these local caches stay synchronized instantly with the core system's cache. The result: All data is seen at the same time by all traders.

The core system's logic is contained in C++ components, while the distributed servers are based entirely on Enterprise JavaBeans. PowerTier 5 also adds features for load balancing, to prevent traffic bottlenecks, and failover, to shift traffic from a broken server to one still active.

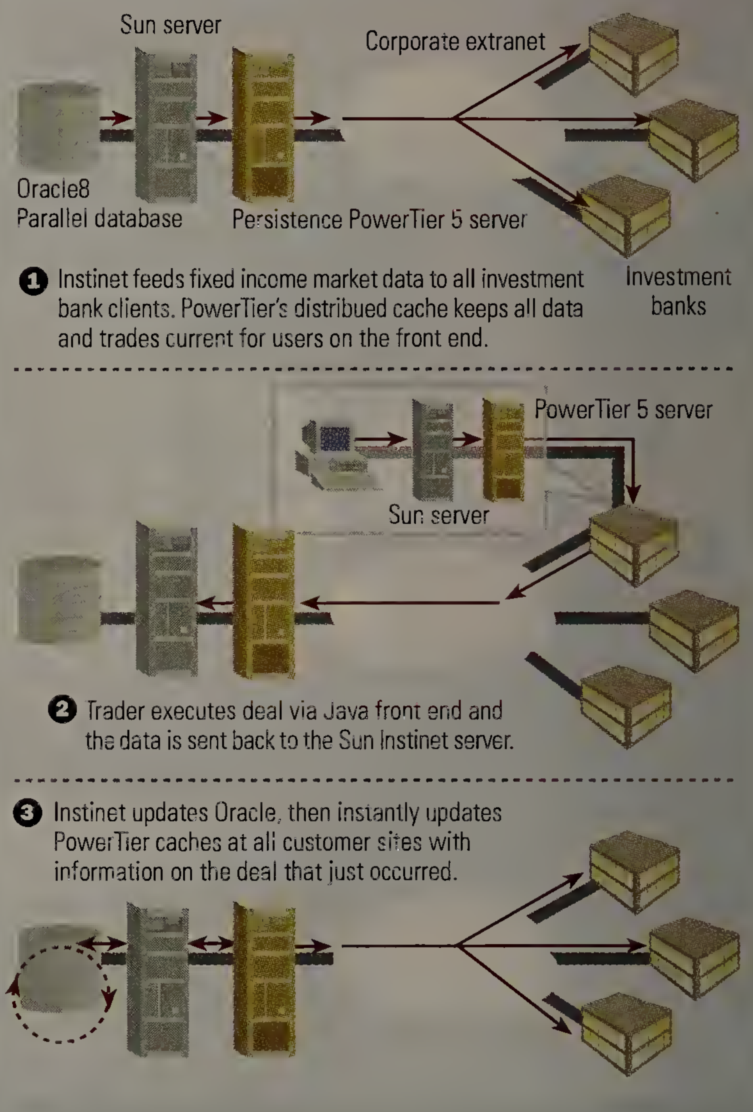
The multiwindowed trader application is written entirely in Java, based on J2EE. Drawing from Reuter's market feeds and Oracle data, this application shows the latest pricing information for each security and a wealth of other relevant information. Traders can buy and sell with a few mouse clicks. The new system uses three different messaging systems.

Rendezvous, from Tibco, another Reuters unit, moves data between the core servers and the distributed servers. SpiritWave, from Push Technologies, is based on the Java Message Service and moves data to the traders' desktops. Marimba's Castanet creates an Internet-based software management system for deploying software across the network.

Beta-testing of the Instinet system starts in July; it is due to go live in early fall. ◪

Instinet's new 'Java net'

A major new electronic brokerage system, which will go live in September, is based on the Java 2 Enterprise Edition platform. Instinet picked Persistence Software's Java applications server to replicate and update the fast-changing market information and to keep all trading information updated.



① Instinet feeds fixed income market data to all investment bank clients. PowerTier's distribued cache keeps all data and trades current for users on the front end.

② Trader executes deal via Java front end and the data is sent back to the Sun Instinet server.

③ Instinet updates Oracle, then instantly updates PowerTier caches at all customer sites with information on the deal that just occurred.

INS,

continued from page 41

is starting or stopping. The software looks at messages and windows appearing on the screen to determine what the user is doing.

Using a developer's tool kit that accompanies Version 3.0, network managers can build hooks into their in-house applications to more directly indicate when transactions are taking place.

Insurance Holdings of America is currently using the tool kit to insert hooks into its insurance transaction-processing application, says Jim Barry, chief information officer at the Beverly, Mass., company.

"These are things that we asked other vendors for," he says.

The transaction-processing application is browser-based, and every screen looks different depending on the database queries run. Without the hooks added, it's difficult to troubleshoot the application if something goes wrong, Barry says.

The software can also watch packaged applications, and Barry is using it to examine Microsoft Exchange. "You never really know how fast Exchange is running unless you're monitoring it," he says.

Once network managers define transactions, software agents on users' desktops monitor PC activity and report back to a central server running the Business Transaction Management Server, which is the part of Version 3.0 that determines response time on the client, network and server for each transaction.

Despite the product's strengths, Barry says VitalSolution's underlying technology still seems to be more advanced than the user interface. The different components, such as the analysis and monitoring pieces, could be more tightly integrated, he says.

VitalSolution 3.0 is shipping now, starting at $43,000.

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'Net Insider . Scott Bradner

SELLING THE ESSENCE OF YOU

A bank sold the account records of its depositors? It even included the depositors' social security numbers?

I could not imagine that might be legal. Apparently, neither could the Minnesota attorney general. But it looks as though US Bancorp recently took those actions. If true, it represents the type of arrogant disregard for individual privacy that many Internet users assume is the norm.

Banks have long been seen as the paragons of discretion. The impression most of us have is that banks hold information about our accounts in secret, except in response to IRS inquiries and court orders. It has been quite a scandal whenever it has appeared that the secrecy was violated.

This is one of the reasons there was so much controversy over the recently withdrawn federal program to get banks to "know their customers." This plan aimed for banks to become an investigative arm of the government and report whenever there was suspicious activity in their customers' accounts.

How banks maintain their trustworthy image even though many of them issue credit cards (and credit card issuers have been vilified as the worst violators of personal privacy), I do not know.

Thus it came as quite a shock when the Minnesota attorney general charged that US Bancorp had sold customer account information, including social security numbers, credit ratings, marital statuses and birth dates, to the telemarketing company MemberWorks. The bank was to get commissions on whatever MemberWorks was able to sell to the bank's customers. In addition, the bank gave MemberWorks the ability to automatically withdraw money from the accounts of the bank's customers if MemberWorks said it had sold something to the customers.

In its defense, MemberWorks claims it did not use the information and that any "protected customer information" was returned to the bank unused.

The bank claims it has not broken any laws and, sadly enough, the institution might be right (though the Minnesota attorney general thinks differently). The very fact that there is any question about whether this sort of wholesale violation of banking customer privacy is against the law is an indication of the problem that we all face in using the Internet. If banks are not required to protect details about your personal life, who is?

This incident has made all the more urgent the push toward the comprehensive privacy protection legislation underway in Washington, D.C. But, like most things in Washington, there is no guarantee that any laws coming out of Congress — even ones that have titles like "Financial Information Privacy Act" — will not actually wind up codifying the ability of banks and other powerful interests to treat you as a source of information to sell. So it is not yet time to breathe easily.

Disclaimer: Harvard, per se, does not breathe, so the above must be my dark mutterings.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@harvard.edu.

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Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

Fiber-optic converters bolster nets

BY BOB MAYER

Bandwidth-hungry multimedia applications, such as audio and video, have increased the need to move more traffic at higher speeds on underlying network infrastructures. These demands require the cost-effective deployment of fiber-optic communications technology.

In fiber-based networks, the basic function of the transmitter in the optical transceiver is to reliably convert serial electrical signals inside the equipment into serial optical signals that are then focused and sent across fiber-optic cable. On the receiving end, the transceiver must reliably convert the optical signal back into the electrical domain. The transceiver must also recover the original signal even if there has been distortion along the fiber transmission path.

Over the past few years, two implementations, with different physical form factors, have been vying for market acceptance in optical networks.

The first optical technology, Gigabit Interface Converter (GBIC), integrates the transmit and receive functions needed to convert between serial-electrical and serial-optical signals, simplifying switch and hub design.

The second optical technology is commonly known as one-by-nine (1x9) and is implemented on a solderable device with one row of nine electrical interface pins. This hard-soldered component is used to provide the physical-layer features on a printed circuit board subsystem, which must then be integrated into the overall system. While potentially economical for use in individual desktop-oriented subsystems, the use of hard-soldered 1x9s in network-centric equipment, such as switches, hubs and repeaters, greatly reduces configuration and service flexibility.

The industry-driven GBIC specification defines a common form factor and electrical interface. This pluggable transceiver module lets system builders and net executives configure, incrementally populate and cost-effectively reconfigure fiber links as required. Initially targeted to support Fibre Channel data networks, the GBIC standard was quickly adapted for use with Gigabit Ethernet installations, as well.

By providing hot-swap interchangeability, GBIC modules give net administrators the ability to tailor transceiver costs, link distances and configure overall network topologies to their requirements. GBIC support also leaves the door open for changing the network without the wholesale replacement of system-level boards.

The use of GBIC transceiver modules reduces overall system deployment and inventory costs because a single form factor can be used for all transceivers. Network executives are not forced to buy fully populated switching equipment. They can purchase GBIC modules to configure their system incrementally, and the service/maintenance functions can be mixed and matched on the optical transceiver components on an as-needed basis.

The latest version of the GBIC specification goes further to support the concept of embedded "serial ID" data for each transceiver device. Using an on-module EEPROM, a GBIC module can provide the system with information regarding its vendor, part number, standards supported, transmission distances, etc. Extended data fields can contain details such as serial numbers and manufacturing date codes. When a new hot-swappable GBIC module is plugged in, this embedded ID information enables the switch to immediately check its status and determine if the module is qualified for use within the switch and/or appropriate for the media link.

The on-module ID information and fault-detection signals also open the door for remote diagnosis and configuration analysis across a network.

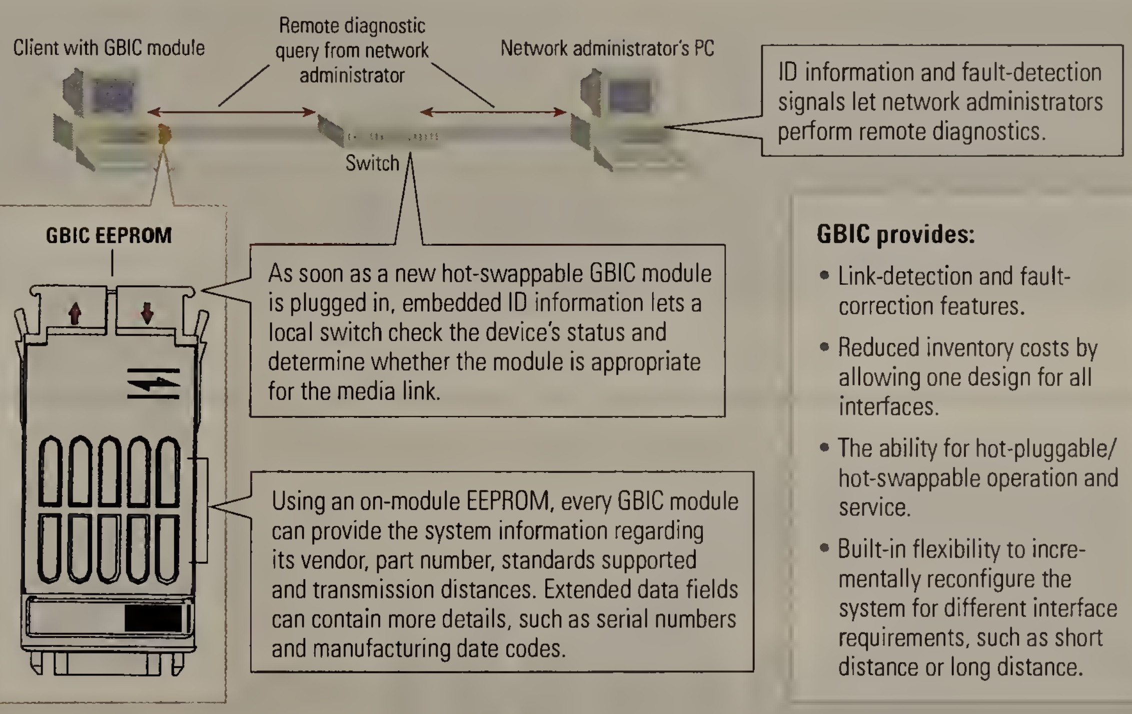
Network administrators could conserve precious staff time by remotely checking the capabilities of each GBIC port on a switch that is experiencing problems, potentially identifying incompatible or malfunctioning modules without an on-site service call.

Mayer is vice president of sales & marketing at Cielo Communications, a provider of optical network products in Broomfield, Colo. He can be reached at (303) 464-2255.

UP CLOSE

Gigabit Interface Converter

GBIC technology integrates the transmit and receive functions needed to convert serial-electrical into serial-optical signals, simplifying Ethernet switch and hub design. The GBIC specification defines a common form factor and electrical interface that let systems builders and network administrators configure and incrementally install fiber-optic links.


Client with GBIC module
Remote diagnostic query from network administrator
Network administrator's PC
Switch
GBIC EEPROM

ID information and fault-detection signals let network administrators perform remote diagnostics.

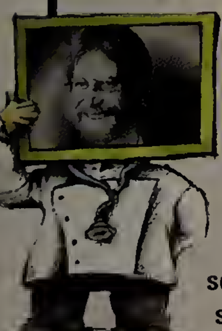
As soon as a new hot-swappable GBIC module is plugged in, embedded ID information lets a local switch check the device's status and determine whether the module is appropriate for the media link.

Using an on-module EEPROM, every GBIC module can provide the system information regarding its vendor, part number, standards supported and transmission distances. Extended data fields can contain more details, such as serial numbers and manufacturing date codes.

GBIC provides:

- Link-detection and fault-correction features.
- Reduced inventory costs by allowing one design for all interfaces.
- The ability for hot-pluggable/hot-swappable operation and service.
- Built-in flexibility to incrementally reconfigure the system for different interface requirements, such as short distance or long distance.

Ask Dr. Intranet



By Steve Blass

Our company has signed up for 200K bit/sec symmetric digital subscriber line (SDSL) service to improve performance between remote intranet sites as well as remote access to the Internet. How can I test the service to make sure I'm getting what I'm paying for?

David Im
MIS manager
Grant International

I assume you have a 200K bit/sec connection, which translates to about 20K byte/sec. One would expect to see between 7K and 20K byte/sec of effective throughput.

To see what rate you're getting, have your service provider conduct uplink and downlink loop tests on the SDSL circuits running between your sites and the DSL access multiplexer. Keep in mind that even if your 200K bit/sec SDSL loop connections operate perfectly in the tests, you won't see the same throughput in everyday use. Real traffic, because it travels through a number of systems across multiple network boundaries, faces delays that reduce effective end-to-end throughput.

Some service providers offer full bandwidth through the DSL net, but you pay a premium.

You also can ensure performance via a service-level agreement. (See "DSL has a DLS (dirty little secret)," *NW*, March 1, page 1, or go to www.nwfusion.com and enter DocFinder: 3533.)

As a network architect at Sprint Paranet in Houston, Blass understands the strain of developing and managing intranets. Send your problems to dr.intranet@paranet.com.

Gearhead — inside the network machine . Mark Gibbs

TWO COOL UTILITIES THAT EXTEND THE USEFULNESS OF PING

Last week we discussed the how's and why's of that most basic of TCP/IP diagnostic tools — the Packet Internet Groper, or ping — and delved into a couple of the more arcane aspects of the protocol.

As a child, Gearhead typically got comments such as "shares well" on his report card. In keeping with that accolade, this week we have some ping utility software for Windows to share with you. These products improve greatly upon the raw presentation of the common command line versions.

The first product is a simple Windows ping utility from Infix Technologies, called PingGraph (www.xmission.com/~infix).

The product takes a minimalist approach to presenting ping data, but it works very well, and for $29, it's a good deal.

PingGraph displays a simple, resizable window containing a graph of ping samples. The samples, which can be taken at rates up to 10 per second, are plotted sequentially with the oldest sample on the left.

You can set a threshold ping time and associate a sound with it so you can be alerted when the ping time changes. (The threshold is plotted on the graph, as well.)

For a warning sound, Gearhead recorded himself and fed it through SoundForge, a nice sound editor from Sonic Foundry, the creators of the amazing Acid music composer.

Now when my ISP gets sluggish, I am warned with a booming, godlike voice: "PacBell is on strike again."

PingGraph can also log ping times in a file. That information can be used to track network behavior, and it can come in handy for beating up your ISP. One of the minor problems is that you can't specify the packet size.

A rather more ambitious and complex ping utility is Ping Plotter by Pete Ness. It has an even lower price than PingGraph: $15 per copy. You can find the product atwww.nessoft.com/pingplotter.

Ping Plotter draws two graphs. The first is a scrolling plot similar to PingGraph, but the second is really interesting: It is a graph of the ping times of all the devices between the target machine and the machine running Ping Plotter. In effect, Ping Plotter is doing a traceroute — let me know if we need a Gearhead column on the way traceroute works.

Both graphs are updated on each sample, and samples can be taken at a rate of anything from one per second to one per hour. You can select whether the graphs display a specific range or autoscale to accommodate the maximum ping time.

What is really nice is that Ping Plotter colors the graphs: green for acceptable ping time; yellow for warning; and red for too long. The thresholds can be specified.

Ping Plotter has a sophisticated alerting system with complex rules that determine what conditions will trigger warnings.

You can define an alert condition as occurring when the average ping time of a number of samples is exceeded, or by the number of times a threshold is exceeded over whatever number of samples you like.

Alerts can be sent by e-mail (with control over how often e-mail should be sent to prevent you from being flooded with warnings), logged in a file or they can trigger an audible warning.

If you opt to log ping data to a file, there's a menu item that copies the entire application display to the clipboard so you have a snapshot of your connection performance.

I really like these tools. PingGraph is simple and useful, while Ping Plotter does a lot more at the cost of some complexity. These are tools that should be in everybody's tool kits.

So what simple tools do you recommend? Ping Gearhead at gb@gibbs.com.

Network World Fusion Spotlight

News, tips and tools from our Web site

A lost art?

A Fusion user wonders what happened to efficient network design and why vendors insist that the answer to everything is more bandwidth.

"I do not want to start a technical holy war, but a perfect example is the marketing engines that are claiming IP is capable of becoming tomorrow's complete transport mechanism for voice, video and data," he writes. "Vendors then follow up with some new 'IP QoS' device, throw in gigabit deterministic access methods and call it the future of networking.

"I understand about port cost, support issues and complexity of other technologies such as ATM. But why does an industry, with a history of being technical and scientific in solution approaches, try to solve problems with bigger pipes and kludges (IP precedent fields, for example)? I know other technologies have their share of kludges, too. But the overall theme suggests the 'dumbing down' of the network engineer's role in designing future infrastructure, all in the name of 'LAN bandwidth is cheap.' The lack of segment utilization and abundance of cheap bits will provide that needed QoS . . .' "

What do you think?

DocFinder: 3531

Nutter's Help Desk: QoS

This week's question comes from a user whose management team has decided it wants to control how much bandwidth is allocated to a particular service or host. The team also wants to be able to entirely block access to specific services by some individuals. See what Nutter suggests.

DocFinder: 3529

The Gibbs forum

We're going to try an experiment starting this week with our old page-sharing best bud, Mark Gibbs (see column right above us). Every week, we'll automatically set up a forum for his "Backspin" column. Have at him. Agree? Disagree? Jump right in and tell us (and him, and other Fusion users) why. Go ahead: He can take it.

DocFinder: 3532

Two types of interviews

When you're going for a new job, your prospective employer will often subject you to two types of interviews. See what they are and why they matter in Career Doctor Shaun Kelly's latest essay.

DocFinder: 2729

Cable and competition

Most Fusion users with a comment seem to agree that AT&T should be forced to open its new cable systems to competing carriers.

But one user says he can see why AT&T and other cable operators would be opposed — and not just because of the direct competitive issues. Cable is different from plain old telephone service, and segregating the bandwidth to allow alternate data flows could cause a host of security and bandwidth issues, he writes.

"You wouldn't let your next-office neighbors share your LAN, would you?" he asks.

DocFinder: 3438

Help Desk

Ron Nutter is standing by to answer your networking questions. Read his column every week on Fusion. DocFinder: 2450

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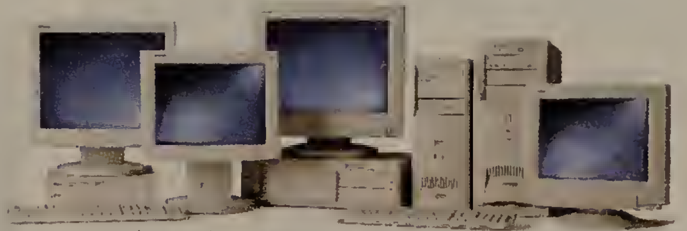

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Opinions

Editorial Insights

Business revelations and other malarkey

In case you missed it, let me point out a must-read: *Fortune's* June 21 cover story called "Why CEOs fail. These men all had what it takes to get to the top. One weakness brought them down."

The cover is eye-catching because the bulk of the CEOs pictured are from the high-tech industry: John Akers, IBM; Gil Amelio, Apple; John Sculley, Apple; Robert Palmer, Digital; Eckhard Pfeiffer, Compaq; and Robert Allen, AT&T.

At long last, someone has figured it out. As the story points out, identifying why CEOs fail is not only important for company boards, but it's also important to "investors, customers, supplier alliance partners and employees."

What fountain of truth did the *Fortune* pundits discover that the rest of the huge, impossibly complex industrial complex has missed? The reason CEOs fail, *Fortune* screams, is because of a failure to execute.

There. We can all go home now.

What complete and utter malarkey. I am astounded that a publication such as *Fortune* would deliver such shoot-from-the-hip crapolla (tech term — consult *Newton's Telecom Dictionary* for explanation).

Let's apply this new wisdom to other things:

- Divorce. Many psychologists, psychiatrists, priests and marriage counselors have tried to determine what tears marriages apart, but they have missed the boat. It all comes down to one simple thing — a failure to execute. Had the partners faithfully executed their marriage vows we wouldn't have divorce.
- The economy. Forget Greenspan, supply side this, trickle down that — it all comes down to a failure to execute. We know. We've studied it. When the economy goes south, American government and businesses aren't executing well. It only rebounds when they execute correctly.
- War. Battle theorists shmeorists. The plain truth is that the generals who execute best have the most men standing when the smoke clears.

When prominent business publications start falling back to simple answers, bells should go off. Stories such as *Fortune's*, combined with the already surreal landscape created by things such as Internet initial public offerings, result in a world of Jello mountains and plastic houses.

What's reality? Hell, has anyone seen the ground lately?

— *John Dix*
Editor
jdix@nww.com

Message Queue

ADVICE TO COMPAQ

Regarding your story "Compaq in disarray" (June 7, page 16): I know exactly what Compaq needs to do to get back on track. It needs to get back to its roots.

Compaq started by making IBM PC clones in the early 1980s. Compaq sold PCs for less than IBM, and guaranteed that any program that ran on an IBM PC would run on a Compaq PC.

When Intel came out with the 80386 chip, Compaq beat IBM to the market with a 80386-equipped PC. While other PC clone makers went bankrupt left and right, Compaq survived, prospered and grew by being quick to market with good PCs at low prices and the latest features. Much of the time Compaq was first to market with the newest technology.

Somewhere along the line, Compaq went off track. The company took its eye off the ball, and Dell, Gateway, Hewlett-Packard, IBM and others stepped into its place. Compaq made two horrible acquisitions: Tandem and Digital, neither of which is essential to its core business.

Compaq needs to get back to being a company that builds Intel PCs and Intel PC-based servers. It needs to get rid of all parts of Tandem and Digital. Obviously, the executive parking, executive dining room and all other executive perks have to go. Compaq is supposed to be a high-tech computer company, not a country club.

Seth Allen
Alexandria, Va.

I bought a Compaq Presario for remote business use two years ago. Since that time, the machine has required four new hard drives and a number of other "fixes." This is the most unreliable PC I have ever owned, and Compaq can't seem to get it right. Even worse, it is not an open system, so I can't replace the company's inferior parts with ones that actually work. In essence, I am stuck with an expensive machine that only works periodically.

In addition, because of the preloaded Compaq system "stuff," there is so much overhead that it takes nearly 3 minutes for the machine to boot up — even thought it is a 200-MHz Pentium.

Tell Compaq it needs to build more reliable machines or it will be out of business, and none of its mergers or other efforts to rebuild itself will work.

W. Thomas Curtis
Managing partner
FSP and Associates
Gaithersburg, Md.

NO COMPARISON

While I generally agree with your review of Acrobat 4.0's features ("New life for old Acrobat," June 7, page 66), your comparison of Acrobat to Microsoft Word is disturbing and suggests a profound lack of understanding of its real value.

Portable Definition Format files are not intended to be easily editable.

The "difficulty" in changing content in Acrobat is actually an asset, indeed a necessity, for true documents of any kind. It helps ensure that a given file will look exactly as its author intended, regardless of platform, operating system, absence or presence of fonts, and screen resolution. The redlining and other editing and security features in Acrobat 4.0 only augment its functionality in this area.

Word is no more a documentation exchange medium than Acrobat is a word processor. It is not multiplatform (much less platform independent), produces obscenely large files, is prone to an ever-increasing number of viruses and, in true Microsoft fashion, is engineered to be hostile to most non-Microsoft products.

Word is an authoring device, just one among the many hundreds of programs that produce files that are intended to be easily editable. Acrobat picks up where these programs leave off, producing secure, platform-independent, high-quality electronic output.

Ultimately, organizations need both types of tools to be successful.

Joe Griffith
Waltham, Mass.

Send letters to nwnews@nww.com or John Gallant, editorial director, Network World, *161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.*

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Intranet Adviser . Daniel Blum

DENIAL OF SERVICE AND THE WORM

When Worm.ExploreZip hit corporate networks a couple weeks ago, I was sitting in the lobby of a large corporation waiting to interview the security director of the firm's electronic commerce subsidiary. When he finally arrived, he told me that the corporate bigwigs had shut down all Internet mail access and, as a result, the e-commerce subsidiary would lose "hundreds of thousands or millions of dollars."

The firm's corporate IS group and other units were vulnerable to the worm, so upper management cut off all incoming e-mail at the firewall to buy time for inoculating various Microsoft Exchange servers and gateways. But because e-mail is the e-commerce subsidiary's lifeblood, its security group had already deployed measures to deal with the worm. Hence the security director's frustration with the decision to shut down e-mail corporatewide.

This episode illustrates that worms and viruses are not only disruptive and destructive, they're also denial-of-service attacks. Like a bomb scare, a virus threat can cause disruption and economic damage even if no physical damage occurs. But while a physical bomb affects only one location, viruses are everywhere.

We've also seen that corporate capabilities to combat viruses are a mixed bag. This kind of problem will get worse if random acts of vandalism, such as the Worm.ExploreZip and Melissa viruses evolve into more sophisticated information warfare, including information terrorism between competing nations, corporations and other groups. Worm.ExploreZip, which targets Microsoft, already looks like information warfare.

The attacks seem to be occurring more frequently, and the denial-of-service implications are increasingly obvious. The days when enterprises could just shut down Internet mail are coming to an end. E-mail is too mission-critical to be cut off everywhere.

Containing viruses requires a layered defense. Install countermeasures in firewalls, gateways, servers and desktops. Deploy intrusion-detection technology that brings your network to a heightened state of alert and increases scanning at the first sign of trouble. Also, increase end-user education efforts and lean on the ISPs — they should bear some responsibility for letting viruses propagate through their networks to yours.

Dealing with the denial of service requires clearly communicated policies. Where business units sharing a messaging network have different defensive capabilities or risk tolerances, and where the criticality of e-mail varies across units, IS departments must find ways to selectively quarantine incoming mail or other forms of connectivity. At a minimum, get the business units to agree to general contingency protocols in advance, or allocate funding to build the flexibility they say they must have. Don't let denial of service threaten the basic consensus on which your shared messaging network depends.

Blum is senior vice president and principal consultant with The Burton Group, an IT advisory service providing in-depth analysis for network planners. He can be reached at dblum@tbg.com.

E-business strategy . Ronni Marshak

WHAT SAVVY COMPANIES HAVE LEARNED ABOUT E-COMMERCE

FRANCIS BLAKE

When you hear the term "e-commerce," you think "Web site," right? Well, you shouldn't — at least, not completely. Yes, a company's Web site is a vital piece of the e-commerce pie, but it is only one piece. E-commerce is not just about the Web and using your site to sell products and services. It's about making it easy for your customers to do business with you, no matter what media they use to interact with you.

So, how do customers interact with you? Customer touchpoints include the Web site, e-mail, call centers, catalogs, stores and contact with direct sales forces. Any successful e-commerce initiative must provide equal — and exceptional — customer service from all these touchpoints.

Let me give you some examples of companies that are doing it right.

Eddie Bauer, a seller of fine sporting apparel and related gear, has a booming business with retail stores and catalog sales. When the company added an online store, it understood that customers wouldn't necessarily stick to the Internet as their only method of interaction with the retailer. As a result, the Web site (www.eddiebauer.com) includes a retail store locator with the addresses and phone numbers of physical stores worldwide, searchable by ZIP code, city, state or country.

Furthermore, items ordered online can be returned to any Eddie Bauer store. And not only can you request a catalog online, but you can also place an online order based on a catalog that you have in your hand. Finally, if you have any questions or problems, a phone number is provided as well as an e-mail inquiry feature. Eddie Bauer has really thought through the multichannel customer scenario very well, providing a consistent branded experience no matter how the customer wants to do business.

Another casual clothing catalog sales/e-tailer, Lands' End, offers similar integration of its catalog and online sales, encouraging people to order online as well as by phone, fax or mail. But what makes Lands' End particularly successful in its online business is its personalization capabilities. The company understands that each customer is an individual with different tastes and characteristics.

Lands' End's Web site (www.landsend.com) is chock full of tips for creating outfits out of separate items. For example, a personal model lets you define your body shape and hair color and then "try on" clothes electronically to see how you'd look. These interactive features make the virtual shopping experience a satisfying and personal one — and customers keep coming back.

Equally important to providing the same shopping opportunities and quality via multiple channels is ensuring that all relevant customer information is available — and up-to-date — no matter what channel customers come in on. In order to be successful in e-commerce, everyone who serves the customers needs to see the complete picture of that customer's relationship with your firm.

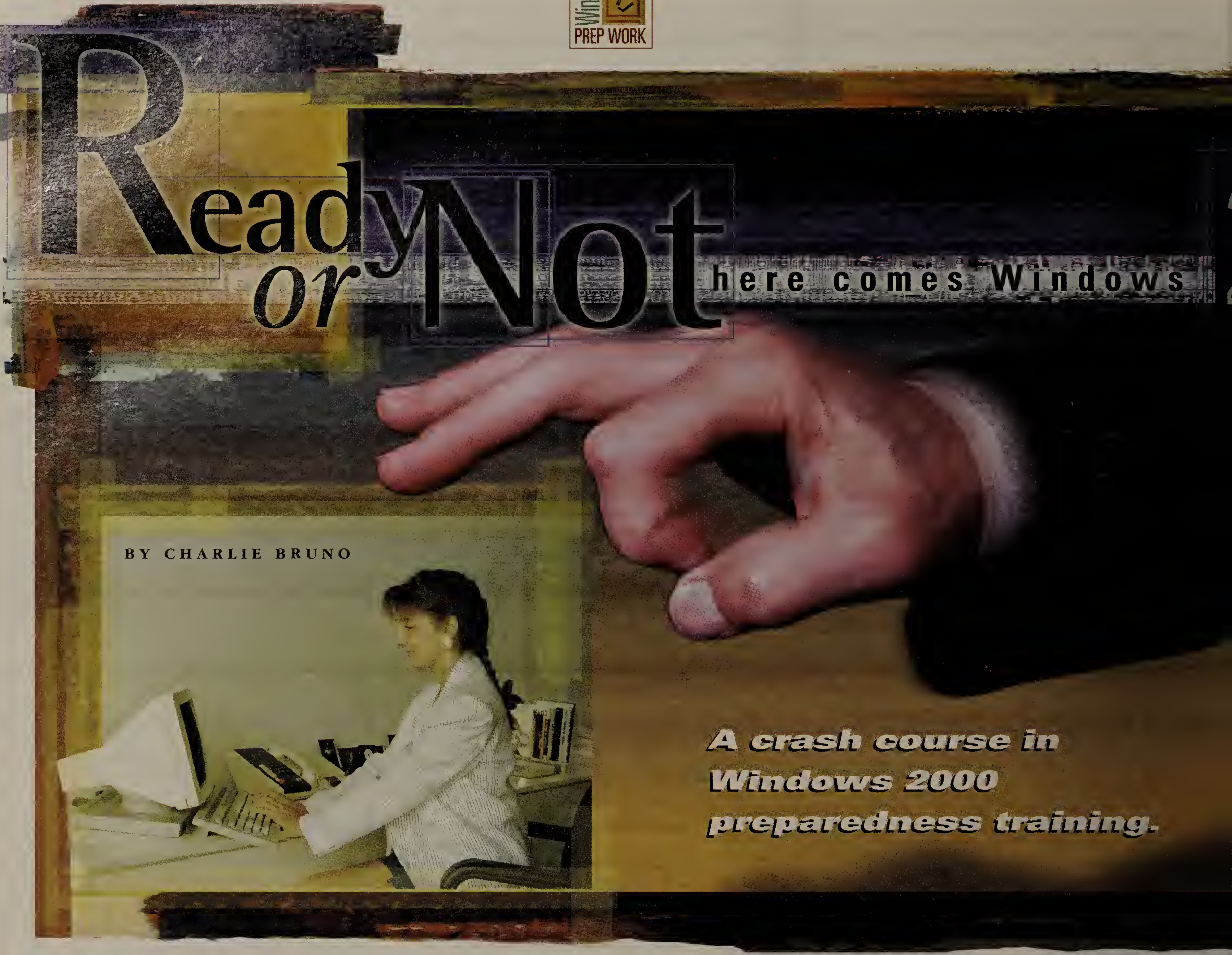
Bell Atlantic recognized that it didn't really know who its customers were. Oh, the carrier knew how many phone lines it sold, how to provision the lines and who paid the bill for each line. But there was no concept of an actual "customer" — someone who might be using three different phone lines, a cell phone, an Internet service and a pager. This was because all data was organized by product line rather than by customer.

Bell Atlantic made a major investment of time and money to create a customer database that consolidated all information on a single customer into one record. It was hard work, but this database has become the centerpiece of the carrier's new e-commerce sales, service, provisioning and billing applications. And, as a result, customers can now serve themselves from both integrated voice-response systems and from the Bell Atlantic Web site (www.bellatlantic.com), because the underlying data infrastructure recognizes who a customer is and what products and services he uses.

So remember, successful e-commerce involves more than an attractive Web site. It ensures that all interactions — Internet, e-mail, telephone, as well as the old-fashioned face-to-face — provide a consistent branded experience, treat the customer as an individual, and have available a 360-degree view of that customer's information. And, above all, successful e-commerce makes it easy for customers to do business with you.

Marshak is vice president and principal consultant with Patricia Seybold Group and co-author of Customers.com: How to Create a Profitable Business Strategy for the Internet and Beyond. *She can be reached at rmarshak@psgroup.com.*

Ready or Not here comes Windows



A crash course in Windows 2000 preparedness training.

BY CHARLIE BRUNO

Just about the time most IT departments will be putting the dreaded Y2K issue behind them, they will encounter the second crisis of the new millennium: the arrival of Microsoft's Windows 2000.

Microsoft has promised to begin shipping the operating system as early as October, but analysts say the software may not be generally available until well into the first quarter of 2000.

Most medium to large shops say they won't implement the operating system until the first Service Pack is distributed. But some companies will begin to embrace it sooner than that for various business and technology reasons. The new Active Directory Service, for example, is attractive because it promises to simplify user account administration and reduce management costs.

For these users, we've prepared a crash course in Windows 2000 preparedness training. What follows is a list of things you can do now to help ease the pain of rolling out Windows 2000 when it arrives on your doorstep.

Top issues to be reckoned with include: Leveling the existing version of NT across your network for a simpler upgrade; ensuring you have the proper hardware; establishing a hierarchy for Active Directory; getting used to Domain Name System (DNS); and prepping for the new management services included with the operating system.

Getting the version right

Microsoft recommends moving from NT 4.0 to Windows 2000. That means if your servers are running NT 3.51 or any earlier version of NT, Microsoft says you'll get a cleaner migration if you move first to NT 4.0 and then on to Windows 2000. There are so many new features built around the NT 4.0 kernel that the transition to Windows 2000 would progress more smoothly from NT 4.0 than from any earlier version of the product, Microsoft says.

We think that you probably will be better off switching to NT 4.0 first, if only to avoid the potential hassles of dealing with Microsoft's technical support staff and its running cash meter should your migration go awry. Windows NT 3.1 and 3.51 users who attempt to move directly to Windows 2000 and run into problems may be forced by Microsoft's tech support to restore affected servers to NT 4.0 before migrating to Windows 2000. So you may not avoid the NT 4.0 step after all, even if you attempt an end run around it.

From a cost standpoint, as an NT 3.X user you may well get hit with a double upgrade fee because you'll have to install NT 4.0 and then Windows 2000. However, Microsoft said it would not comment on upgrading licensing fees until the product ships.

You'll also need to do some version checking when you're switching to Windows 2000 from NT 4.0. When you migrate from NT 4.0, make sure you first load the latest service pack — Service Pack 5. This service pack changes the NT 4.0 Security Access Manager database, which holds all the information about user accounts and passwords and sets the database up to run under

ILLUSTRATIONS: JOHN CONRAD

the new Windows 2000 Active Directory structure in tandem with the new Security Manager. This functionality is not available for NT 3.51, hence Microsoft's recommendation for an upgrade to NT 4.0 and the appropriate Service Pack prior to your Windows 2000 rollout.

Beefing up your boxes

While version leveling brings your NT Server software up to par for the Windows 2000 move, you still have to raise the bar for your hardware platforms.

If most of your company's servers are currently running NT 4.0, you might be able to make do with the hardware you have. But there are a few things to consider if you want to get the best performance out of Windows 2000.

The standard configuration for Windows 2000 is basically the same as an NT 4.0 host platform. Officially, NT 4.0 requires 32M bytes of memory, but most users deploy NT 4.0 on file servers with 64M bytes, with midrange servers having anywhere from 128M to 256M bytes. High-end database servers can use 1G byte or more of memory.

Windows 2000 is designed to run on a Pentium-class server with 64M bytes of memory. We recommend 128M bytes because memory is so inexpensive — a 64M-byte DIMM module costs just $54.

Why pay for extra memory? To guard against "disk-thrashing," or excess disk swapping, for starters.

Engineers at The Tolly Group have launched the Windows 2000 Beta 3 along with Internet Explorer, Microsoft Word and Microsoft Outlook, all of which use a combined total of 94M bytes of memory. Windows 2000 is comprised of almost 40 million lines of code and itself takes up about 50M bytes of memory when it loads. If you unleash that behemoth on a server with only 64M bytes, you'll exhaust your server by just requiring it to swap data back and forth to disk.

Another factor to consider is the processor speed of the server. Pentium II-class servers should support the new operating system without a problem. But servers based on Intel's new Xeon-class processor — which is available in Pentium II or Pentium III models — offer an inherent advantage because the Layer 2 cache runs at the same speed as the processor. The Layer 2 cache in non-Xeon class Pentium II and Pentium III processors runs at half the speed of the processor. Moreover, the Pentium-class servers offer only 512K of Layer 2 cache, whereas the Xeon servers offer up to 2M bytes of cache.

While you don't need a bigger cache to run Windows 2000, you may need it for more advanced applications, such as SQL database applications that are designed specifically to take advantage of the larger caches. And if you're bolstering the hardware platform to support a Windows 2000 upgrade, you should consider upgrading the hardware to support your applications mix, as well.

Also, while servers with large caches may help you run advanced applications, servers that employ high-speed caches can reduce the time required for a server to transfer data from the cache to the processor core, which translates into faster processing and higher performance.

Prepping for Active Directory

Active Directory replaces NT 4.0's domain directory model and is the primary reason why many large shops will upgrade to the new operating system.

Microsoft has always maintained that NT 4.0 domains could be intricately woven together into a single hierarchical directory with the help of so-called "trust relationships" between domains. But all too often these trust relationships make for messy administration and confusing domain relationships.

Active Directory promises to erase that mess and confusion and let administrators literally see the forest for the trees. Inside Active Directory, trees are essentially domain structures that share a single namespace. Forests are a set of trees that do not share a contiguous namespace.

By using hierarchical design, and mapping resources in a network tree to DNS names, Active Directory should offer an improved directory structure.

Getting there, though, will be a task unto itself. To some extent, network planners may need to wipe the whiteboard clean and figure out just how to put existing domains into the Active Directory hierarchy, as well as determine how trust relationships of the past fit into the new Active Directory tree. For companies with many domains, figuring out the trust relationships between those domains and their resources can be quite a task, especially if you have user accounts in all of the domains.

This is entirely new ground for NT 4.0 users. Microsoft has issued a series of white papers to offer advice on rearchitecting domains (www.microsoft.com/windows/server/Technical/directory/globalwp.asp). But these theories have yet to be widely tested in full-scale production environments. For many users with multiple domains, it boils down to a wait-and-see issue — only when users begin to migrate to Active Directory will they begin to comprehend the magnitude of the changes that must take place.

For tips on how to clean up your existing NT 4.0 domains and do some Active Directory modeling in preparation of a migration to Windows 2000, check out the story "Closing the Active Directory gap," page 58.

Factoring in DNS

Any company intent on migrating to Active Directory will also have to embrace Domain Name System. DNS is the Internet service that associates IP addresses with domain names. Windows 2000 does not support Microsoft's older Windows Internet Name Service (WINS).

Any NT Server today can support DNS — you just have to load the service and turn it on. The issue here, though, is how much risk does an organization wish to accept in running DNS?

If your organization isn't running DNS, are you going to wait until your new operating system requires it and face the daunting task of learning both DNS and the new operating system services at the same time? Or will you slowly migrate away from WINS, grow accustomed to DNS and have one less task to worry about six months from now? Shrewd network shops will make the jump to DNS now. If you don't, you're setting

The Upshot

You don't have to sit idly by and wait for Windows 2000 to arrive before prepping your network for the new operating system. This article provides a checklist of issues that can be addressed now. Those issues include: leveling the existing version of NT across your network for a simpler upgrade; ensuring you have the proper hardware; establishing a hierarchy for Active Directory; getting used to DNS; and training for new management services.

yourself up for a lot of pain later.

Let's talk about your options for starting the DNS learning curve.

You can run DNS and WINS in parallel, but you shouldn't let them perform the same function. If Windows is using both services to resolve a host name, you will have a hard time determining which service is being used at any given time.

But you can run the two in parallel if they are each playing to a different audience, so to speak.

Under this scheme, you would deploy DNS to provide domain name services for all Internet users and to provide name resolution for Unix clients on the network. You would keep WINS in place to offer name resolution for NT clients and servers.

As another option, you can set up a proxy server to handle DNS entries. In effect, you install a default gateway that routes DNS queries to a DNS server located on your ISP's network. Under this scenario, Windows desktops don't interact with DNS at all. When the PC makes an Internet request, the PC performs a WINS lookup and, not finding a match, routes the request on to the proxy server. The proxy server then directs the DNS lookup to the ISP's server.

In this proxy server scenario, once your organization adds Windows 2000 functionality, you turn off the WINS service and utilize local DNS servers supported by Windows 2000.

Another interesting planning issue pertaining to Windows 2000 and DNS relates to Dynamic Host Configuration Protocol (DHCP) servers. If you are using a DHCP server, you may need to make some additional changes on the client side to support DNS. In those instances, you might have to reconfigure those devices by removing a WINS name, adding the DNS name and rebooting each machine.

If your client workstations are statically mapped, rather than set up to receive an IP address from the DHCP server, then you will need to schedule visits to all your client workstations to reconfigure the TCP/IP services.

Handling centralized control

Instead of having several interfaces for each of its NT-based management tools as Microsoft has in the past, with Windows 2000 the com-

CLOSING THE ACTIVE DIRECTORY GAP

Things to think about before you make the move from NT 4.0 domains to Active Directory.

BY DENNIS WILLIAMS

So you've been working with NT domains for a few years, and now you're staring Active Directory in the face. Directories being the complex beasts they are, you know that you're in for a real challenge if you're going to move to Microsoft's next-generation operating system, Windows 2000. Here are a few things that will help you get your NT 4.0 domain infrastructure in order before you flip the switch on Active Directory.

- Verify the information you already have in your domains. Chances are your old domains have grown cluttered, full of user IDs of past employees, groups that exist for no apparent reason, and accounts that haven't seen action for two months because the users have moved from marketing to sales. There's no point in migrating all your garbage to Windows 2000 — clean it up now. Tools such as Entevo's DirectManage suite (www.entevo.com) have domain searching and reporting capabilities that can help you weed out duplicate or outdated information within your domains.

- Consolidate your existing domains. The easiest way to populate your Active Directory will be to do so from a single domain. Many NT 4.0 shops have divided their installations into several domains in order to accommodate multiple geographical locations or autonomous departments. You'll save effort during the upgrade if you consolidate them now.

  The main issues you'll face when consolidating NT 4.0 domains are resolving disparate naming standards and reconciling security policies. Products such as FastLane Technologies' DM/Manager (www.fastlane.com) and Mission Critical's Domain Administrator (www.missioncritical.com) can help you address these issues for consolidating NT 4.0 domains and migrating NT 4.0 domains to Active Directory.

- Test the political waters. Educate management and users on the new Active Directory hierarchy and how the migration will affect how they locate and use network resources. You can do this with any number of Active Directory modeling tools.

  For example, Aelita Software Group (www.aelita.com) offers a utility called Delegation Manager that lets you create an Active Directory structure, test it in a controlled environment to see if it works and gain management's approval, and then roll back the changes if you don't like it.

- Minimize the risk when making your move. There are two different scenarios for the migration. The wrong way is to do an in-place upgrade to Windows 2000 at your NT 4.0 primary domain controller and upgrade the entire domain at once. This converts your network irrevocably to Windows 2000. You can't undo it, which is risky.

  The better option is an incremental migration of domain information to Active Directory. This means you move your users over in subgroups, ensuring that both the old NT 4.0 account and the new account in Active Directory have access to the resources. In this respect, you keep the NT 4.0 domain structure intact, so if you do have any problems you can always revert to it and maintain service levels. This is an essential requirement for moving any large enterprise NT 4.0 installation to Active Directory.

Williams, a freelance writer and product improvement consultant based in Alpine, Utah, is a member of the Network World Test Alliance. He can be reached at Dennis@ProductReviews.com.

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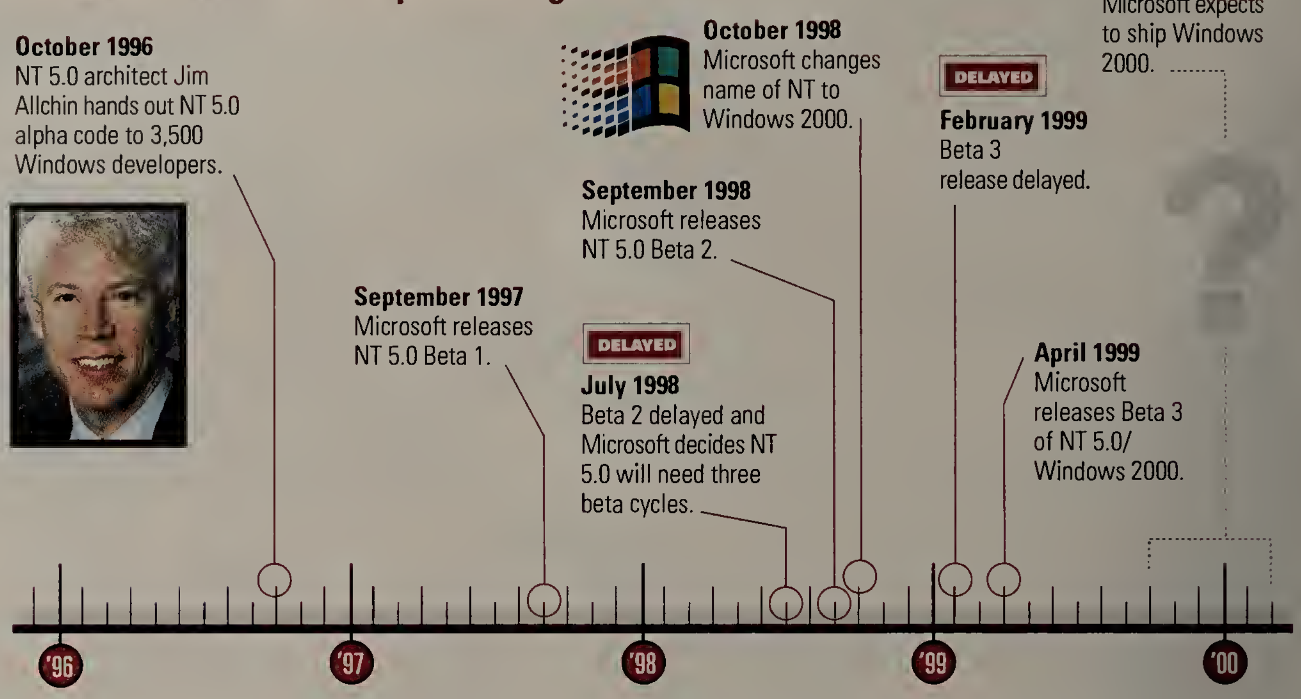
The Windows 2000 ship date saga


October 1996
NT 5.0 architect Jim Allchin hands out NT 5.0 alpha code to 3,500 Windows developers.

September 1997
Microsoft releases NT 5.0 Beta 1.

DELAYED
July 1998
Beta 2 delayed and Microsoft decides NT 5.0 will need three beta cycles.

September 1998
Microsoft releases NT 5.0 Beta 2.

October 1998
Microsoft changes name of NT to Windows 2000.

DELAYED
February 1999
Beta 3 release delayed.

April 1999
Microsoft releases Beta 3 of NT 5.0/ Windows 2000.

Late 1999
Microsoft expects to ship Windows 2000.

pany will offer a single, unified interface across all management tools, called the Microsoft Management Console. MMC — which is available now in the NT 4.0 SP5 for administrators to examine — provides a consistent interface to several common tools and utilities.

The idea of a central management console for all server and desktop administration tools is a complete change for NT users and should give managers greater control over more NT resources. For example, instead of creating a user account, you now can create a user object that includes various attributes that help identify where the user account lives in the network hierarchy. This will let administrators centralize all their user data. Currently, in large NT 4.0 networks, user data is distributed across multiple domains. This setup tends to pose costly administrative problems as users move about.

Microsoft's MMC plug-ins — which are management applets that run inside the console — replace many of the old configuration and administration tools that currently ship with NT, such as the User Manager, Server Manager and Event Viewer. Third-party software developers can write their MMC plug-ins so that network administrators can manage these third-party products from inside the centralized console.

Initially, this may cause some confusion because administrators have been using the old interfaces since Windows NT 3.1 was first released in 1994. Instead of having to switch among different tools to do different management tasks, you now have this variety of plug-ins to do all the tasks with one common interface. But early beta builds of Windows 2000 show that the operating system is not completely integrated with some of the new management applications. For example, management of the Active Directory is distributed over three MMC tools.

So net administrators will need some upfront training. Fortunately, that learning curve isn't as drastic as it might seem. Basically, once administrators launch a management plug-in from MMC, they will encounter many of the old tool-specific interfaces they know — with just a bit more polish.

Lack of luxury

Unlike large corporations that can experiment with Windows 2000 in network labs before rolling it into production networks, many small- to midsize companies don't enjoy that luxury.

Even if your organization can't get its hands on beta code today, there are steps you can take to prepare for Windows 2000. Some of these tasks, such as version leveling and hardware upgrades, are mundane but are nonetheless critical to the overall success of migrating to the new operating system.

Other issues, such as those surrounding Active Directory and DNS preparation, are more complex and require a good deal of education.

Addressing these issues now will put you in a position to smoothly handle the operating system upgrade whenever the Windows 2000 gold code becomes available.

Begin looking at these issues now, and let us know if you think there's more to preparing for Windows 2000 than meets the eye.

Bruno is managing editor of publishing products at The Tolly Group. He can be reached at cbruno@tolly.com.

Rick Pfleger and John LeMay, engineers at The Tolly Group, contributed to this report.

Windows 2000 special report
continued on page 62

AN ACCOMMODATING BUNDLE FOR OLDER PCS

Integrated terminal services keep older PCs alive on a Windows 2000 net.

With Beta 3 of Windows 2000, Microsoft has bundled its previously stand-alone Windows Terminal Server into the base operating system.

This terminal server technology — formerly available under the label of Windows NT Server 4.0, Terminal Server Edition — lets older PCs with little memory, smaller disk drives and slower processors run newer, high-end applications.

With this setup, the applications execute on the terminal server instead of on the workstation. This lets older PCs and newer thin clients keep pace with newer machines whether the terminal server is located in the next room or in a remote location.

Having applications installed on a single server available to many clients saves on initial installation and future upgrade costs because the application does not need to be installed on every workstation. Every time a new software version is installed, network engineers do not have to physically deploy code across multiple desktops.

Nevertheless, application-licensing costs remain the same because you still must buy a license for each simultaneous user.

— Charlie Bruno

More Online

- Is your network in shape for Windows 2000? Take a Windows 2000 fitness test sponsored by FastLane Technologies.
- Picking the right Windows 2000 hardware. Dell has made its best guess on the gear you'll need to run Windows 2000 on your desktop and servers.
- Active Directory Driveby: A 10-minute demonstration.
- See how the comparisons measure up. Both Novell and Microsoft have each offered up NDS and Active Directory comparisons.

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JOHN CONRAD

OFFICE SUITE TAKES WING WITH WIN2000

Microsoft's new IntelliMirror technology uses client-side caching to conserve network bandwidth.

BY RANDALL KENNEDY

Many enterprise IT organizations are exploring Windows 2000's myriad systems management features for deploying traditional applications, such as group policies and assigned applications, but few have yet to recognize the promise of Microsoft's IntelliMirror infrastructure. IntelliMirror represents a fundamental advance for deploying client applications. You can now set a policy that enables mobile user profiles and facilitates just-in-time downloads of application code to the desktop. In our test lab, IntelliMirror yielded amazing improvements in the level of network traffic generated by server-based applications.

IntelliMirror employs a concept called client-side persistent caching. In the world according to Windows 2000, network volumes are more than just shared storage space. The volumes are also repositories for a common application code image that can be cached at the client level, letting multiple systems access the shared image concurrently with minimal network overhead.

Server-hosted applications are nothing new. IT planners have long been aware of the potential to reduce systems management costs by storing application code on the server. However, bandwidth limitations have made running all but the smallest and simplest of applications from the server impractical.

With Windows 2000 Professional's new Synchronization Manager application, a Windows 2000 client can connect to a shared network volume, download the code it needs to execute a server-hosted application and store the code locally in its disk-based network cache. The client downloads the code only once; subsequent accesses are made to the image in the cache.

Before IntelliMirror, the only way to achieve this kind of Windows application centralization was by deploying Windows Terminal Server (WTS), a less-than-perfect solution that requires an application execute directly on the server. WTS clients must remain continuously connected and use more network bandwidth than IntelliMirror, making WTS less flexible than a traditional client/server environment. WTS will still be part of Windows 2000, but we expect its role will be limited to deploying kiosk-style applications or letting administrators gain remote console access to a server.

Putting IntelliMirror to the test

We built a Windows 2000 test network to see how well IntelliMirror's cached-server-share architecture handles a classic application deployment scenario. We installed Windows 2000 Server on a Tyan BX-based system with a pair of 450-MHz Pentium II CPUs, 256M bytes of RAM and an Intel 10/100 Ethernet card. We installed Windows 2000 Professional on a BX-based client sporting a single 500-MHz Pentium III CPU, 128M bytes of RAM and an Intel 10/100 Ethernet card. The systems were the only devices connected to an Ethernet hub, the shared 10M bit/sec environment being a typical bandwidth-bound network.

To implement IntelliMirror, we set up an Administrative Installation of Microsoft Office 2000 Professional using a network share point on our Windows 2000 server as the target. We then created a new Active Directory organizational unit on the server and configured a new policy for our Office 2000 Users test group. The policy stipulated that all users in the group have Office 2000 installed, with the aforementioned network share point as the installation source. After a quick reboot of our client PC, we logged back on to the server, and Office 2000 was installed automatically and configured to "Run from Network" without any user intervention.

We got a baseline for bandwidth utilization by disabling all caching options at the share point. Using CSA Labs' OfficeBench 1.0, we executed a series of 15 test runs against the network share, using Windows 2000's new integrated performance monitoring and logging the Microsoft Management Console snap-in to log the server's average byte/sec counter. Once an initial flurry of activity subsided, the network showed a rather consistent 2.1M bit/sec level of traffic.

We then reconfigured the network share point so Windows 2000 clients would automatically cache program files as they were accessed. Once again, there was a flurry of initial network activity, after which network utilization dropped to a remarkably low 14K bit/sec as the client continued to execute the benchmark, this time almost entirely from cache. Testing across an additional five concurrent clients yielded predictable results, with the aggregate average bandwidth utilization never exceeding 100K bit/sec. As a point of reference, we also ran OfficeBench under WTS, returning a result of 545K bit/sec for a Microsoft Remote Desktop Protocol session and 136K bit/sec for a Citrix Intelligent Console Architecture (ICA) session. Bottom line: One ICA Terminal Server client session generated network traffic equal to 10 concurrent IntelliMirror users.

As promising as these results are, they are, of course, preliminary. It remains to be seen how well IntelliMirror works with non-Microsoft applications. But if the results we observed in the lab continue under more heterogeneous conditions in the field, IntelliMirror may turn out to be the sleeper technology of Windows 2000.

The only catch is that you have to deploy Windows 2000 Server and Windows 2000 Professional before you can reap the rewards; IntelliMirror doesn't work with Windows 9x.

Kennedy is the director of research for Competitive Systems Analysis, an IT research and consulting firm specializing in custom benchmark design and IS metrics. He can be reached at rck@csaresearch.com.

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BANK CHARGES AHEAD WITH FUEL CELLS

BY NEAL WEINBERG

First National Bank of Omaha powers its data center with the same top-of-the-line technology used by NASA.

When First National Bank of Omaha (FNBO), one of the heartland's largest banks, was looking for reliable power for its new downtown data center, it could have gone the traditional route and purchased an uninterruptible power supply.

A UPS is, in effect, an onsite miniature power plant that takes raw power from the local utility company and, with battery and generator backup, can weather everything from routine power surges and sags to full-blown blackouts and still deliver a steady, even flow of electricity.

But FNBO decided to take a radical new approach that turns the concept of backup power on its head. The bank isn't using the local power utility as its primary source of electricity. Instead, it's running its 200,000-square-foot data center with electricity generated onsite by four dumpster-sized fuel cells from a Danbury, Conn., start-up company called Sure Power Corp.

The fuel cells take in natural gas and, through a chemical process, produce electricity, heat and clean water. All of NASA's manned space missions have used similar fuel cells to provide electricity and drinking water for the astronauts.

The first floor of FNBO's data center, tucked 15 feet below ground, contains two redundant pairs of fuel cells, each capable of producing 400 kilowatts of electricity. Because the data center needs a total of about 300 kilowatts of electricity, there would still be sufficient power even if two of the four fuel cells failed.

And Omaha Public Power, which delivers electricity from the power grid, has been relegated to the role of backup. In fact, it's the second backup. Sure Power's package includes a generator-powered UPS as the first backup.

"No other place in the world has four fuel cells paralleled together for the purpose of supplying computer grade power to a data center. We're it," says Dennis Hughes, director of property management at the Nebraska bank.

For Hughes, the decision to become a high-profile guinea pig for this new approach to data center power came down to numbers — lots of them. Typical UPS systems promise 99.999% reliability, or three nines. Adding expensive redundant features can bring UPS systems up to four nines of reliability.

That may sound awfully reliable, but three nines reliability translates into 53 minutes of downtime per year. "We can't afford that," says Hughes, pointing out that the bank has 6.5 million customers and is the seventh largest credit card processor in the country. The bank loses $6 million for every hour of downtime.

Sure Power claims that it can offer 99.999999%, or six nines of reliability, which means less than 3.1 seconds of downtime per year. Sure Power accomplishes this through ONSI Corp.'s proprietary combination of fuel cells, which generate the raw power, and Piller, Inc.'s UPSes, which take the raw power and regulate it into a controlled flow of electricity that stays within the voltage requirements of mainframe computers.

Of course, all those nines are merely statistical probabilities, but Hughes is determined to get the most reliable system out there. Even though the fuel cells' $3.4 million price tag was an estimated $1.2 million more than a traditional UPS, the bank decided the additional upfront jolt was worth the higher levels of reliability.

The data center's Hitachi Skyline mainframe is built to provide between five and six nines of reliability. It did not make sense to have a power supply that is less reliable than the mainframe computer it serves. And the bank had a bad experience with a traditional UPS system a few years ago during a blackout. A string of batteries failed, the data center went dark for several minutes and it took hours to get all the systems back up and running.

Dennis Hughes of First National Bank of Omaha rolled out a highly reliable power system that produces electricity, heat and clean water.

KENT SEAVERS

As an added bonus, the fuel cells will produce enough heat to keep the whole building warm in the winter and melt snow around the building using special coils built into the sidewalks.

Sure Power co-founder Art Mannion makes it clear that fuel cells aren't for everybody; this is an expensive, top-of-the-line system for places such as data centers, hospitals or other locations that absolutely can't afford to go down even for a few seconds. But he also argues that the number of companies that find themselves in need of super-reliable power is growing.

Hughes left nothing to chance when it came time to put the Sure Power system to the test. He took bank officials to Sure Power headquarters to see the fuel cells in action. And he made a trip to Piller headquarters in Middletown, N.Y., to put the product through its paces.

When Sure Power delivered the system to the new building in Omaha in mid-December, Hughes tried to push it to the limit. If it hadn't passed the onsite integration test, the bank wouldn't have accepted delivery.

Before the cutover to the new system earlier this month, Hughes had his share of butterflies. But the Sure Power system "outperformed even our wildest dreams," he says. The bank is using its high level of reliability as a key marketing tool as it expands its business in processing credit card transactions for smaller banks.

FNBO's decision to go with fuel cells will be closely watched by other companies with large data centers and by proponents of fuel cell technology. Hughes says he has already had scores of inquiries and has started appearing at conferences to talk about the system.

There are about 120 ONSI fuel cells in operation worldwide, says company spokesman Michael London. The cells are popular in Japan, where energy costs are higher, and they are being used in a variety of specialized applications. For example, a sewage treatment plant in Boston is using methane gas to power a fuel cell, and the town of Groton, Conn., is using landfill gas to power a fuel cell.

Fuel cell advocates, such as consultant George Kamburoff, say fuel cells are going to change the world. The highly efficient, portable power sources are the darlings of environmentalists because they are virtually emissions-free. Kamburoff says the fuel cells will bring electricity to the remaining areas of the world that don't have it. The Pleasant Hill, Calif.-based consultant says if the Sure Power system works as advertised, it could give a huge boost to the technology. ◪

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Bring in the bean counters

Consultant says IT departments are in dire need of financial oversight.

BY LAUREN GIBBONS PAUL

Ken McGee has nothing but admiration for the technical savvy of those who work in the complex, ever-changing world of networking. But network executives are lacking in business sense — financial management in particular, he says.

As vice president and research fellow in networking for Gartner Group in Stamford, Conn., McGee is on a crusade to get large companies to realize that their IT departments are large enough to warrant a chief financial officer (CFO) of their own.

"Take a look at the Fortune 1000 and see how many millions of dollars they spend on networking. It would be impossible to find a company whose revenue is as large and does not have a CFO," McGee says. Given the amount of money they control, the senior network executives of large firms are essentially the CEOs of multimillion-dollar businesses.

However, most network executives don't have a grasp of financial best practices, McGee says. The majority of companies — large and small — don't seek competitive bids for network services.

"[Network managers] don't buy equipment or services every day. Their perception is that business skills are required only once every three years or so. We're saying that's an incomplete view," McGee says.

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Stephen Wietrecki, chief financial officer at ON Technology, plans to keep a watchful eye on the company's internal IT expenses.

STELLA JOHNSON

The upshot is that companies are wasting an awful lot of money — exactly how much, no one knows. McGee contends that now is a good time to stop the overspending and adopt best practices to insulate IT from future downturns.

When no one is minding the dollars and cents, asset management and expense control often slip through the cracks. These are issues that need the dedicated attention of a financial specialist, not someone who is already overworked and focused on technology, McGee says.

But he isn't suggesting having the IT department report to the CFO, which already occurs at many companies. McGee thinks this leads the perception that IT is about cost cutting rather than revenue generation. What he's calling for is the placement of a CFO-like financial authority in the IT department to review the equipment and services contracts on a continual basis instead of once every few years.

McGee says he doesn't know of any companies that have a CFO in IT. Because the economy has been so strong, people don't notice or care if a few dollars are squandered. But he predicts that will change as the economy begins to cool. That will be a time when senior business executives will become interested in saving money.

"When it's time to cut expenses, only then do senior executives discover best business practices have not been followed," McGee says.

The downturn arrived last year for desktop management and calendaring software vendor ON Technology of Cambridge, Mass. With revenue down 52% from 1997 to 1998, the firm topped the Network World 200 list of companies experiencing the greatest revenue declines.

Newly appointed CFO Stephen Wietrecki will keep a close eye on the balance sheet and make sure ON Technology's IT department puts financial best practices in place. "The use of best practices turns into significant cost savings," Wietrecki says. As CFO, the IT department reports to him. But Wietrecki will personally take the time to make sure ON is not wasting money.

For example, he will weigh each proposed new IT project against the health of the company. "I want to make sure we're investing the money at the right time for the business," Wietrecki says.

He will ensure that at least three vendors bid whenever telecom or other sizable contracts are up for renewal, a simple thing that Gartner's McGee says most companies do not do. Wietrecki also examines the financial health of his company's vendors, which he considers to be his business partners, something that has not been done in the past. He will review pricing for expenses that cost more than $10,000 per year, such as telecom, on a monthly basis, having the vendor visit at least twice per year.

Wietrecki understands why some people in IT might not welcome the arrival of someone wearing a green eyeshade. "The old-school CFOs don't understand technology. They try to go with what they know, which is cost-cutting," he says.

New-style financial executives, on the other hand, understand that technology is strategic. Says Wietrecki: "I'm here to make sure our technology spending makes sense from the business perspective."

Paul is a freelance writer in Waban, Mass. She can be reached at laurenpaul@mediaone.net.

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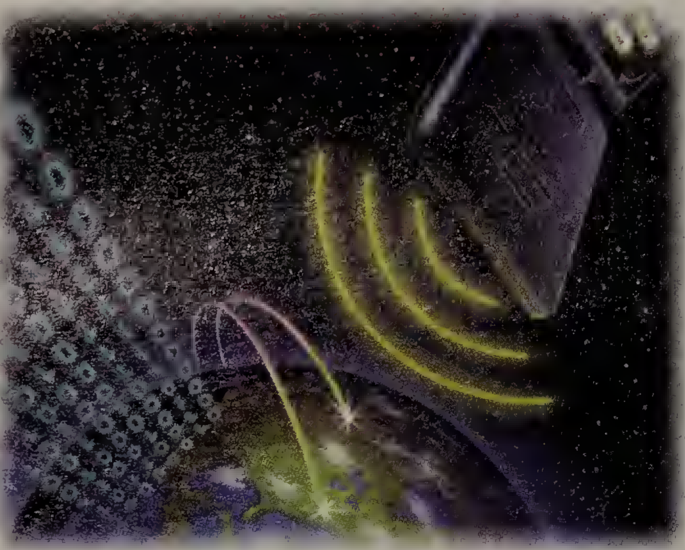

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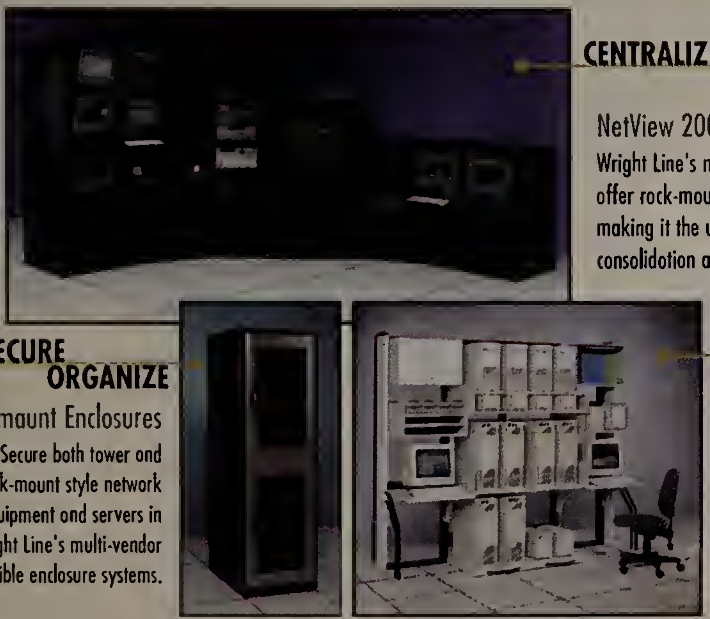

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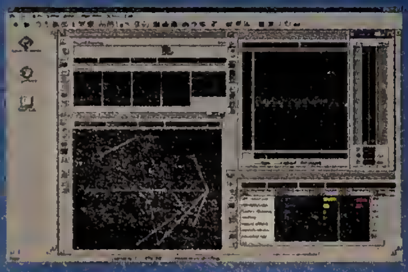

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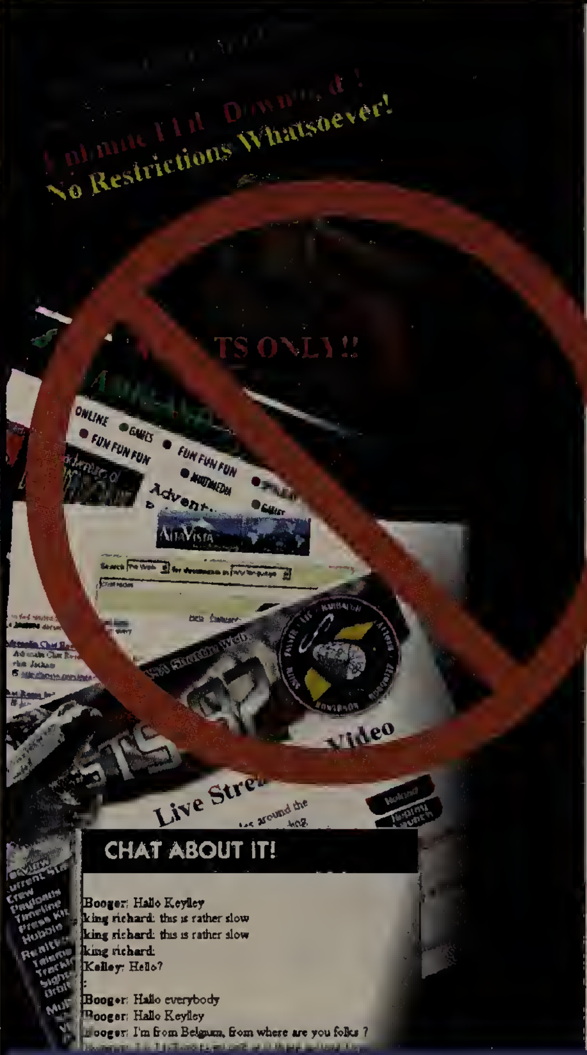

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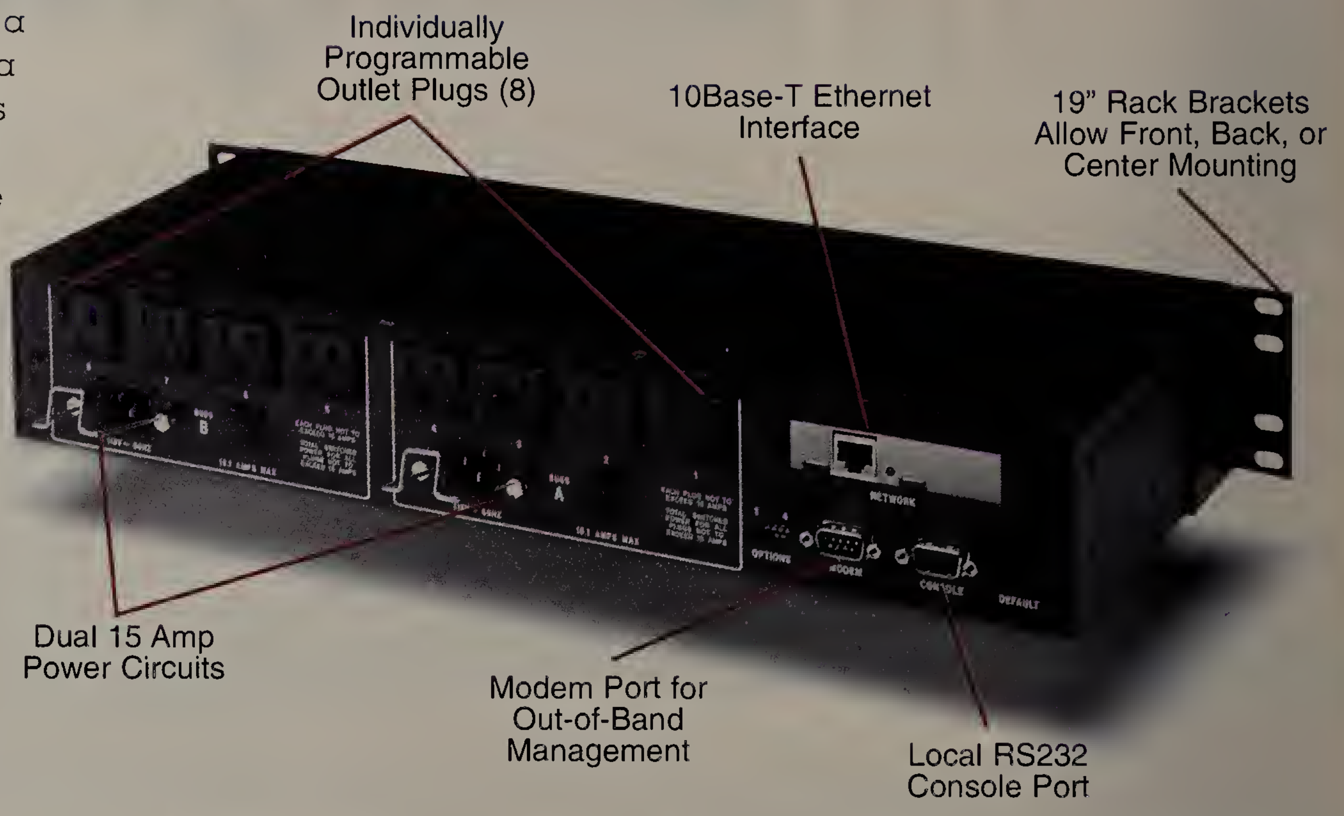
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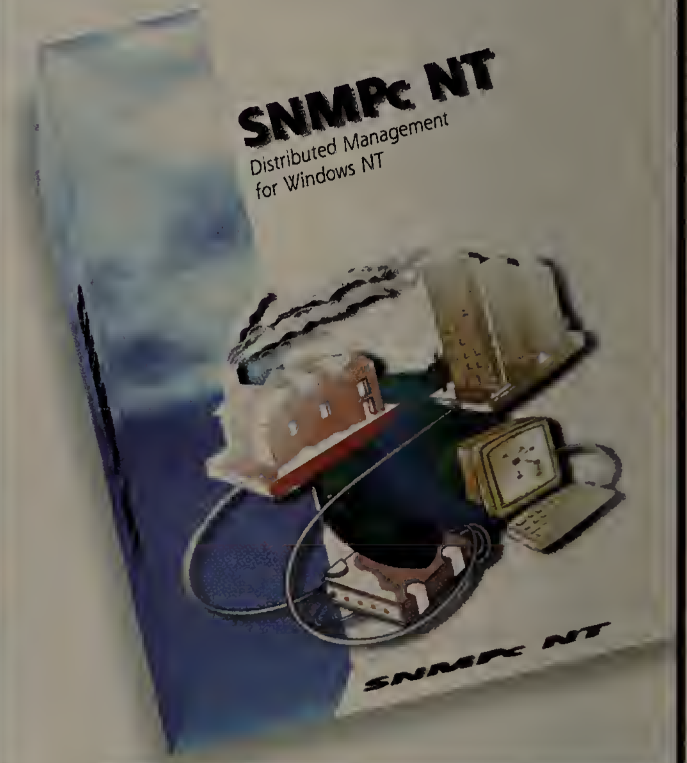

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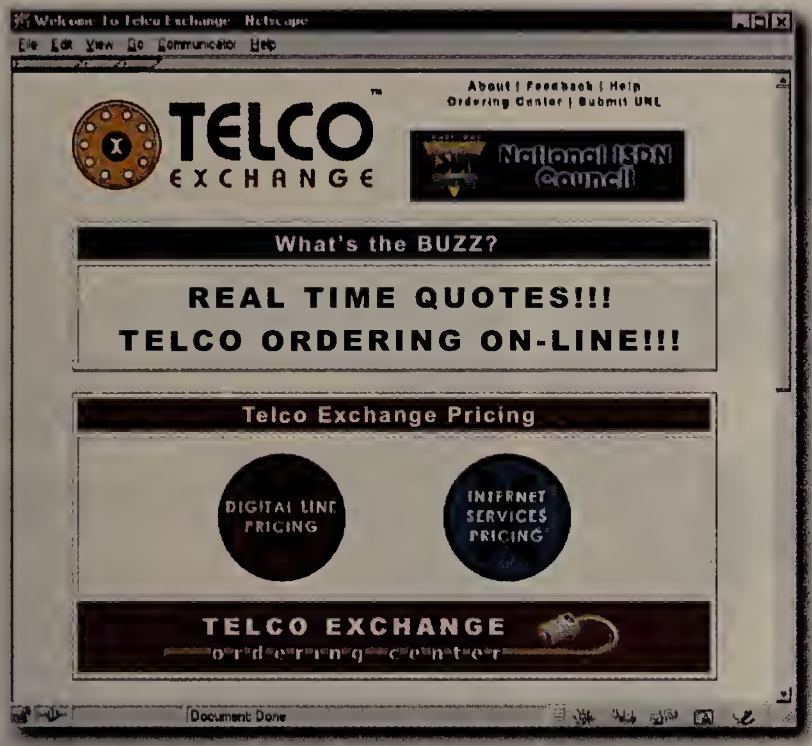

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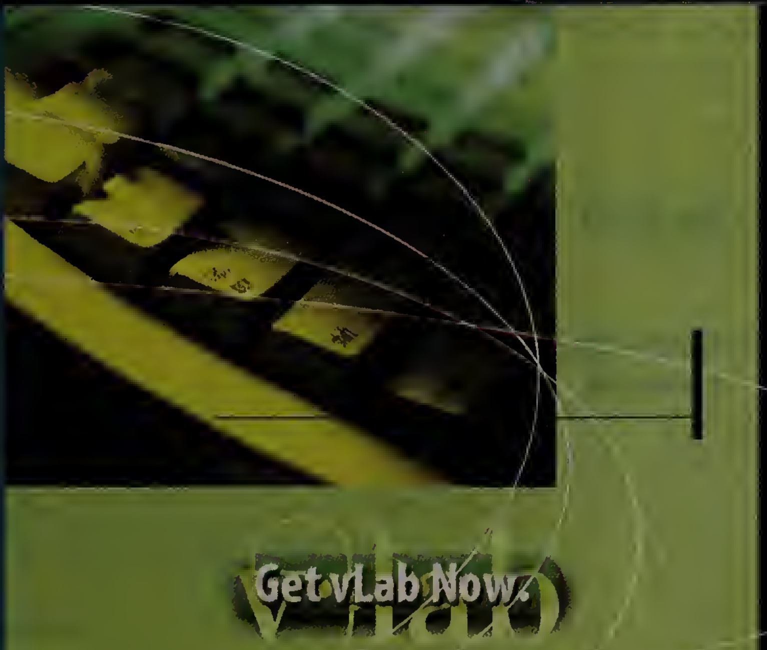

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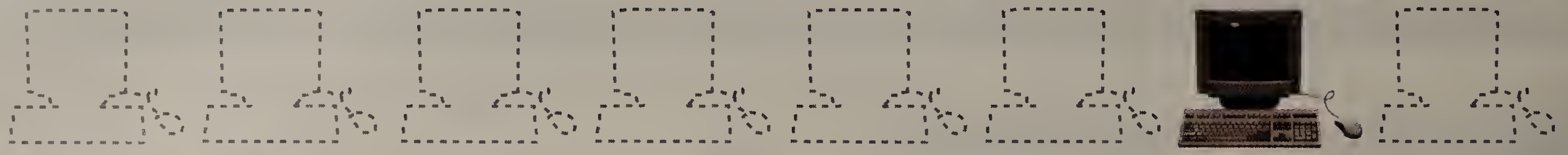

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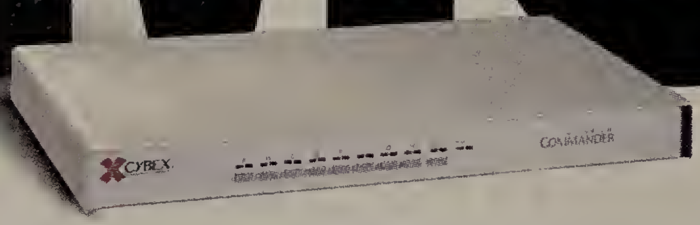

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Internet: clasker@nwww.com
Debbie Lovell, Senior Sales Associate
(508) 875-6400/FAX:(508)879-5760

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Tom Davis, Advertising Director/Eastern Region
Elisa Della Rocco, District Manager
Internet: tdavis, elisas@nwww.com
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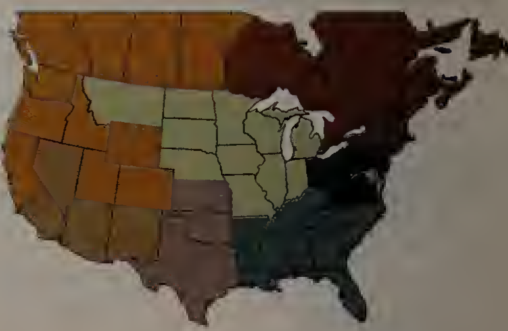

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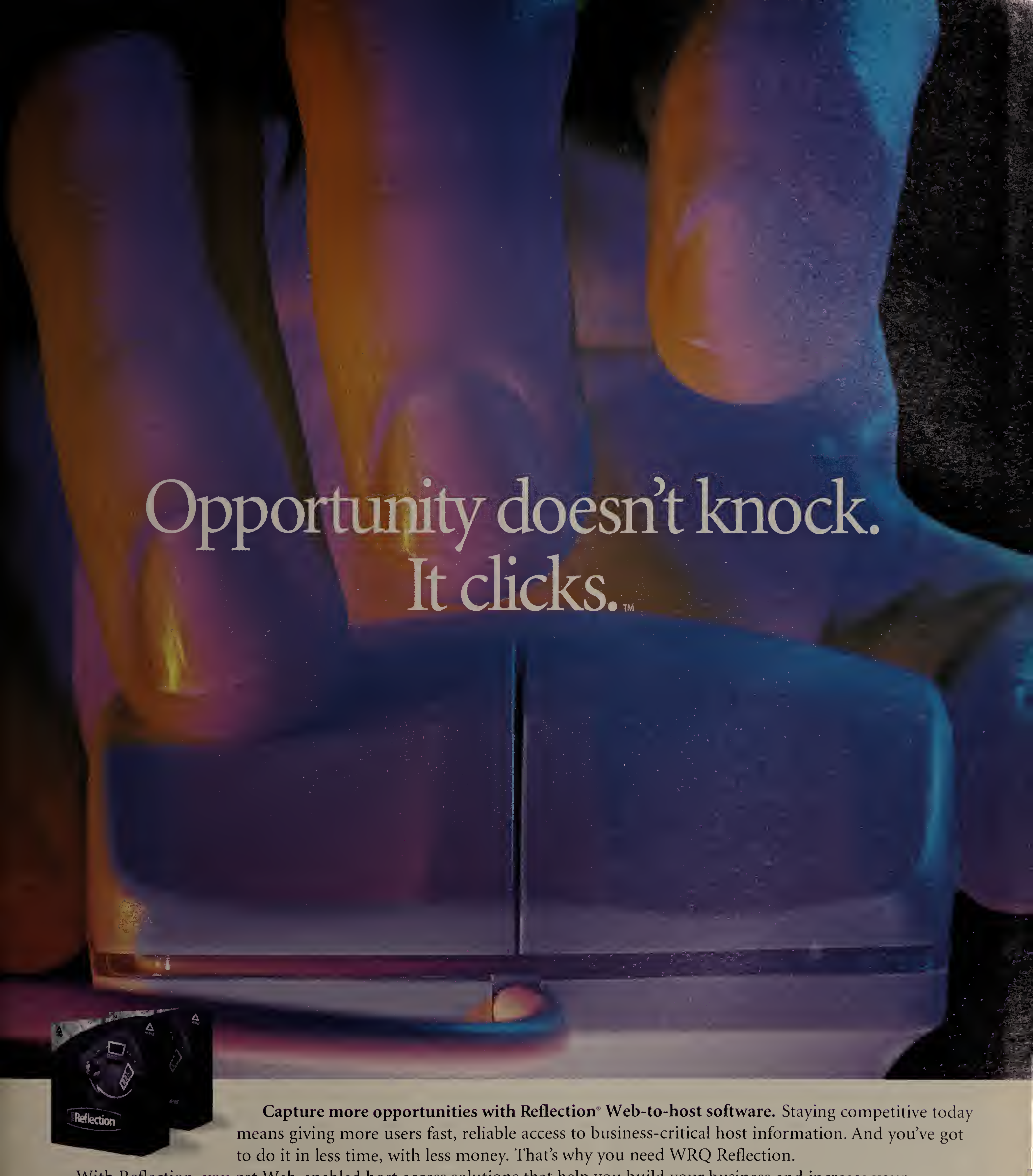

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The Scoop

The news behind the news

HOW CAN AT&T NOT OPEN ITS CABLE LINES?

At first glance, AT&T's insistence that it not be forced to open its cable lines to competitors seems like the carrier could win the Olympic gold medal for hypocrisy. After all, AT&T has screamed for three and a half years that local phone companies aren't doing enough to make their local loops available to competitors, endlessly demanding pieces of individual regional Bell operating company's networks at specific prices with electronic ordering and service guarantees. Yet AT&T has convinced many people — including Federal Communications Commission Chairman William Kennard — that its arguments on its own behalf are perfectly valid. Here's why AT&T says the lack of cable open access is not a contradiction:

- *The law doesn't require it.* Federal and state governments have a role in mandating local-loop access for telecom carriers. But in the world of cable TV, there's an additional factor: local government bodies that issue franchises to serve individual communities. To prevent an impossible patchwork of regulation — or "balkanization," in AT&T's rather politically loaded term — from developing among the 30,000 franchising authorities, cable law specifically prohibits local authorities from doing certain things on their own. And one of those things is imposing special conditions, such as telecom-style interconnection on cable licensees, until the federal government acts to require it.
- *AT&T is not one of those evil RBOCs.* Telecom law does more than simply mandate that local carriers open their networks to competitors. Section 271 of the Telecommunications Act of 1996 specifically names the Bell operating companies as entities with special obligations under the law — notably, to meet a rigorous local-competition checklist before entering long-distance. By contrast, no law has ever singled out cable operators Tele-Communications, Inc. and MediaOne as being companies with particularly troubling histories that require special oversight.
- *AT&T may decide to open its cable networks anyway.* AT&T Chairman C. Michael Armstrong insists he has never rejected the idea of eventually putting competitors' offerings on AT&T cable lines. In fact, he says, if AT&T customers demand America Online or access to other popular ISPs over cable, he would be foolish not to provide it and gain an opportunity for more usage revenue. That's an opportunity that the RBOCs would never have provided to their competitors. But a government mandate for cable open access — a technology that AT&T says is still too immature — would only discourage investments in two-way upgrades and cable-modem rollouts.
- *Armstrong and Kennard have a deal.* The FCC chief lives a hard life. Every so often he has to appear at Capitol Hill hearings and listen as politicians rant and rave that the telecom act is a failure and the FCC's implementation of the act is a mess. And key carriers keep reneging on promises to compete for residential customers outside of their territory. So when the AT&T/TCI deal came along, Kennard grabbed tight and held on for dear life. With closed access, Armstrong's strategy won't create tons of options for users, but it would create a kind of "duopoly": one set of voice and data services over the cable line and a competing set over the phone line. That's better than a monopoly, and Kennard hasn't had a better offer in a long time. So, in effect, Armstrong and Kennard are saying to their critics: "Got any other ideas?"

— David Rohde

AT&T,

continued from page 1

of a proposed merger with cable carrier MediaOne Group while coming under increasing fire for insisting that the government not require AT&T to open its cable systems to competing ISPs. AT&T is already the nation's leading cable company following its recent acquisition of Tele-Communications, Inc. (TCI). But last week, local officials in Los Angeles and San Francisco signaled that they might force AT&T to open its TCI cable systems to rivals for broadband Internet access and two-way telephony.

That followed a recent federal court decision in Portland, Ore., forcing AT&T to open a TCI network there to Internet and telephony competitors. AT&T has threatened to suspend cable-modem rollouts wherever it is forced to open cable plants. The spiraling dispute seems likely to delay new high-speed options, such as cable modems and digital subscriber lines (DSL), for corporate network telecommuters as well as residential users.

But there's a possible silver lining for AT&T in the emergence of the new Bell-led coalition. Political insiders say the McCurry group may actually split the opposition to AT&T because the group has a significantly different goal than AT&T's past opponents.

So far, most of the lobbying to open AT&T's cable systems has been carried out by the openNET Coalition, a group of 70 mostly ISP-affiliated organizations led by America Online. OpenNET is seeking cable open access. But several sources told *Network World* that McCurry's group will be seeking "parity" between cable and telco regulation as its primary goal. The group will demand cable open access if the Federal Communications Commission continues to require telcos to make their broadband options, such as DSL, open to all potential competitors. As an alternative, the group may endorse AT&T's effort to restrict access to its cable facilities if the FCC agrees to deregulate RBOCs' DSL offerings.

"The real goal there is to get deregulation for the telcos," says Scott Cleland, managing director of the Legg Mason Precursor Group in Washington, D.C. ISPs and user groups have bitterly fought this idea in the past, claiming that if the FCC deregulates RBOC data services, innovative new providers could not get local loops to complete DSL rollouts.

As a result of the groups' different goals, openNET officials were taking a wary stance late last week toward the new lobbying group. An assistant to McCurry would say only that "we're still working on a final set of principles."

But the McCurry group has close ties to super-RBOC SBC Communications, which has constantly complained that the FCC's data resale and local-loop regulations prevent the carrier from investing in broadband data as heavily as it would like. Since leaving the White House late last year, McCurry has headed the Public Strategies Group, a lobbying venture whose public-relations affiliate counts SBC as a major client.

An SBC spokesman stopped short of saying that the RBOC will definitely join the McCurry group. But he acknowledged that SBC, Bell Atlantic and other companies have been involved in the lobbying discussions.

"All telecommunications companies should be regulated the same way," the spokesman says. "The way it is right now, cable is regulated one way, wireless another way and telecom yet another way." McCurry is expected to be joined by Molinari, a once-rising Republican party star who left politics last year for a stint in TV news.

In fact, the entire controversy over AT&T cable systems is teeming with former politicos. The AOL-led openNET is also co-chaired by a bipartisan duo: Greg Simon, a former domestic-policy aide to Vice President Al Gore, and former Republican Party Chairman Rich Bond.

But the political action hasn't all been in Washington. While AT&T was seeking merger approval for TCI without open access — eventually winning FCC Chairman William Kennard's endorsement in exchange for a promise to serve poor neighborhoods with high-speed access — the carrier fought many local cable franchising boards that were threatening to mandate open access.

"AT&T dispatched its thousands of attorneys and was successful in tamping it down," says one openNET Coalition member who asked not to be identified. The exception was in Portland, where the franchising board and courts insisted on open access, unleashing a new wave of threats against AT&T.

Just last week, three of five members of an IT policy review board for the city of Los Angeles resigned, protesting Mayor Richard Riordan's endorsement of closed access. ◪

Three-way opposition

Three different coalitions are battling AT&T over open access to the company's cable systems, but their different motives may help AT&T split the opposition.

Group name	Status	Basic position	Principal members
openNET Coalition	Active since early this year.	Broadband cable should be open along with telecom local loops.	America Online, Cable & Wireless, MCI WorldCom, Mindspring, Netscape, Sprint, US West, Verio, several state ISP associations and many other ISPs.
"The McCurry Group" (not officially named yet)	Start-up expected shortly.	Broadband cable and telecom should be regulated the same, whether open or closed access.	Public Strategies Group (headed by Mike McCurry), SBC (probably), Bell Atlantic (probably), others being recruited.
No Gatekeepers	Recently started.	Cable "monopolies" must not limit consumer choice of ISPs or content.	Consumers Union, Computer Professionals for Social Responsibility, Media Access Project, Utility Consumer Action Network, other consumer groups.

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Cisco,

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Sources say CTRC software, in conjunction with the mainframe channel-attached CIP router, can boost IP access speeds to SNA-based DB2 and CICS applications some four times over existing access methods. The new software will also eliminate the need for a separate gateway device.

Typically, IP users needing access to SNA-based CICS and DB2 applications must go through two separate devices, such as an IBM 3745 front-end processor and a gateway.

Researchers estimate that up to 80% of all mainframes have DB2 and or CICS applications running on them. Therefore CTRC will help Cisco grab more data center users — a group largely dominated by IBM. Ultimately, as enterprise network professionals add TCP/IP to their mainframes, DB2 and CICS access will be supported across TCP/IP directly into mainframes. But Cisco is targeting users who are not ready or willing to make that wholesale swap.

CTRC will be rolled out in two phases this summer.

CTRC 1.0 is a rebranded version of Cisco's Database Connection software package, which converts TCP/IP data requests to SNA messages. Until now it was a separately priced product. CTRC 1.0 can communicate with IBM's Distributed Relational Database Architecture, a protocol that lets DB2 talk to other databases. The software supports Microsoft's Open Database Connectivity (ODBC) API, which means users will be able to exchange DB2 data with Microsoft Excel and other ODBC-compliant packages.

CTRC 2.0, expected to be announced next month, will let IP users directly access CICS applications on mainframes. CICS is IBM's customizable general-purpose transaction monitor. The idea is to let users mix CICS information with desktop applications. To support CTRC 2.0, sources expect Cisco to release an enhanced version of its current IOS Version 12 software. Cisco refused to comment on the announcement.

CTRC can exploit standard IOS features, such as the ability to encrypt data running from mainframes to users, and quality-of-service prioritization for different types of traffic. The CIP routers can be configured to support redundancy for protection in case a CIP or router fails.

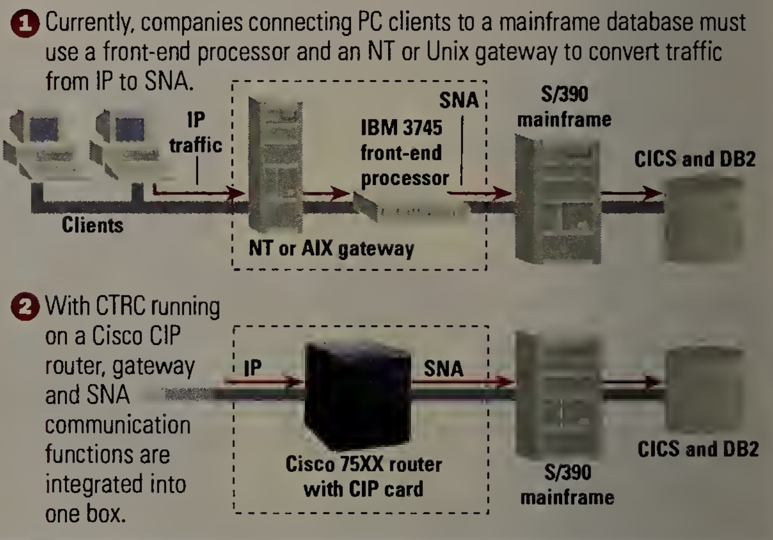
There are definite pros and cons to CTRC, depending on where you're trying to simplify your network, says Nick Gall, an analyst at Meta Group in Westborough, Mass. To the network camp, CTRC may "not be the world's greatest idea" because it adds another layer of protocols to IOS. However, Gall says that from a gateway point of view, the more you can reduce the number of devices and software programs running between the host and the client, the better. "The idea of having just a router as my connector is a good thing, as it reduces the number of moving parts," he says.

"Cisco is introducing a 'me-too,' and I don't know if it has much of a value-add compared with the things already available in the marketplace," says Jim Goethals, an IBM executive.

Pricing for CTRC 1.0 will start at $200,000. ◪

Fewer boxes, better network

Cisco claims users of its CTRC software on Cisco routers will save money and aggravation by simplifying IP client-to-mainframe connectivity.



① Currently, companies connecting PC clients to a mainframe database must use a front-end processor and an NT or Unix gateway to convert traffic from IP to SNA.

② With CTRC running on a Cisco CIP router, gateway and SNA communication functions are integrated into one box.

DSL,

continued from page 1

The service, called 2-wire, 128K bit/sec Frame Relay, establishes a 128K bit/sec access link between the customer and his 56K or 64K bit/sec frame relay network. The service more than doubles the access bandwidth for customers who have 56K bit/sec frame access service, and eliminates the need for them to buy a full or fractional T-1 service when they need additional bandwidth.

Separately, national long-haul data carrier Intermedia Communications plans to use multiple DSL flavors, in combination with special links to other carriers' networks, to cut hundreds of dollars per month from customer access bills.

Until now, carriers have been offering DSL mainly as a means of Internet access. But they are now looking to DSL technology as a way to circumvent costly T-1 services.

In the past, customers who wanted to boost frame relay bandwidth above 56K bit/sec had to buy a fractional T-1 access service. Thus they were paying for a circuit that can carry 1.5M bit/sec worth of traffic, but they were using less than that capacity. US West's service lets customers buy less capacity for less money.

Intermedia, meanwhile, is testing the use of symmetric DSL (SDSL) at 768K bit/sec and two-wire high-bit-rate DSL (HDSL2) at 1.5M bit/sec to support frame relay access.

In addition to using less-expensive DSL access lines, Intermedia is taking advantage of the Network-to-Network Interfaces (NNI) it has between its network and those of the major local carriers, including all the regional Bell operating companies.

The NNIs let Intermedia use every RBOC switching office as a point of presence (POP) for Intermedia's network. That makes Intermedia access points closer to customers, eliminating the mileage fees customers would have to pay to reach separate Intermedia POPs, says Gerald Sharp, Intermedia's senior director of architecture.

Those mileage fees could amount to $400 per month per access circuit that Intermedia would pass along to customers, he says.

DSL frame relay access is already saving money for customers of Freeze Notice Weather, an ISP in Des Moines, Iowa. Freeze Notice normally runs T-1 lines to customers who need more than a 56K bit/sec frame relay connection to the Internet, says B.J. Bowman, systems administrator for the ISP.

But using US West's 128K bit/sec service gives the company extra bandwidth for $90 per month less, he says. He expects the number of fractional T-1s that Freeze Notice buys to drop because the company will instead buy more of the 128K bit/sec service.

Paradyne, which makes DSL gear, says DSL is a good option in areas where T-1-grade copper loops are scarce. Many varieties of DSL run on two wires instead of four, as T-1 does.

Paradyne is so optimistic about DSL as a frame access technology that it is developing a DSL modem with a frame relay interface that also monitors the performance of the virtual circuits running on the DSL line.

The device would let customers monitor the performance of the circuits to make sure service providers meet service-level agreements, says Scott Eudy, Paradyne's vice president of network access products. The product would be a marriage of Paradyne's Hotwire DSL modem and its FrameSaver DSU/CSU probe, he says.

"Most frame relay is for client/server applications. You need a little bit of bandwidth from the client to the server and a lot of bandwidth from the server back to the client," says Steve Taylor, principal at Distributed Networking Associates in Greensboro, N.C.

Taylor says that using DSL for frame relay access could drive down access costs. Service providers that use DSL for Internet access charge $50 per month for 256K bit/sec IP access. Customers will realize that they should pay roughly the same amount for frame relay access over the same type of DSL link, and they will pressure carriers to drop their prices, he says. ◪

Frame relay for less

Frame relay customers who want more than 56K bit/sec service but less than a T-1 should consider US West's DSL-based, 128K bit/sec frame relay service. This 2-wire offering costs less than a full or fractional T-1 service.

Service	Access fee	Five virtual circuits	Total cost
2-wire, 128K bit/sec	$35	$109	$144
Fractional T-1 at 128K bit/sec	$117	$122	$239

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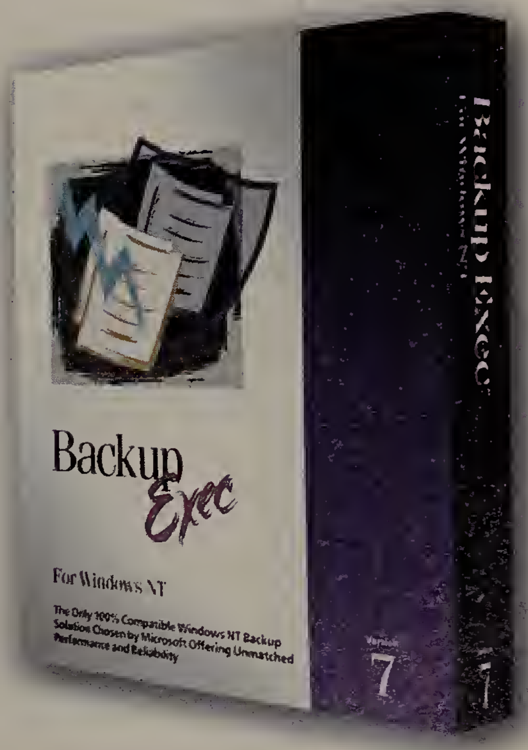

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Backspin

Responsible anonymity and John Doe

There has been in recent years excessive emphasis on a citizen's rights and inadequate stress put upon his duties and responsibilities.
— Paxton Blair, former solicitor general, New York

Do you have a right to anonymity on the Internet? Most people would say "yes" automatically, but what are the limits of your right to stay invisible? If we're talking about an individual whom a big company has set its sights on, then most people will side with the individual. They'll invoke the mystical totems of the right of free speech and the tyranny of big business.

MARK GIBBS

While defending the little guy is a noble ideal, the reality is that sometimes the little guy is being a jerk.

This is highlighted by a drama being played out at the moment in the case of Xircom v. John Doe. In case you don't know the players, Xircom is a company that makes Ethernet and modem PC cards, and John Doe is . . . well, there's the problem.

It seems that John Doe, going under the alias of "The_View_From_Inside," posted three messages on the Xircom investors forum on Yahoo that weren't exactly complimentary to Xircom. Xircom subsequently took Yahoo to court to force the company to identify the pseudonymous critic.

I've seen a number of discussions on the matter. The tone generally has been that Xircom is going after the critic out of outrage and because it can. Even the *Los Angeles Times* chose the approach of big bad company against the little guy in a piece titled "'John Doe' suit threatens Internet users' anonymity."

"An increasing number of 'John Doe' lawsuits are being filed by companies that have been the targets of anonymous defamatory opinions posted on the Internet. These lawsuits force ISPs to reveal the identities of the online critics. The companies say that lawsuits are one of their few options in the fight against defamation, but critics contend that the tactic jeopardizes online anonymity," the story states.

From the tone of that piece, you might think John Doe had right on his side, but the truth is somewhat different. The postings on Yahoo aren't just from any old critic, they are written by someone claiming to either work, or to have worked, at Xircom.

I talked to Xircom's legal council about the issue, and the company's concern is that the anonymous poster would, by Xircom's standard employee contract, be in violation of clauses concerning the publishing and dissemination of company confidential information. Consequently, Xircom wants justice.

I would say that isn't an unreasonable position for Xircom to take. And the fact that the critic is hiding behind anonymity (with a lot of legal assistance) and refuses to confirm or deny whether he has ever been a Xircom employee makes him look rather guilty.

What's interesting about the Internet community's response to the issue is the assumption that the big bad company is trying to shut down a whistleblower. Yet, if you read the critic's comments, there's no whistle-blowing going on but rather an attack on the firm's management, products and business practices.

And if the critic had real points to make, he wouldn't be hiding behind anonymity. But the Internet community and the press seem to be happy not knowing the facts; they automatically side with the little guy and worry about free speech and the squelching of whistleblowers.

Along with the rest of the Internet, I'm all for protecting the rights and freedoms of the individual. But the idea of saying what you please about whom you please in the world's most public forum makes the use of anonymity unacceptable.

Identify yourself to nwcolumn@gibbs.com.

'NET BUZZ

The latest on the Internet/intranet industry

PAUL MCNAMARA

There's nothing like four days with the Internet Society to get that ol' TCP/IP flowing through your veins. Last week's INET '99 conference in San Jose did the trick.

A few observations:

IBM's 'Net guru, **Irving Wladawsky-Berger,** reports that the Safeway grocery chain in the U.K. is not at all convinced that legions of customers will give up their shopping carts in favor of ordering eats over the Web. (Neither is Buzz.)

"People at Safeway tell us that their research shows people like to come to the store," he says. Which doesn't mean they want to spend all weekend there. In search of faster checkouts, Safeway is experimenting with handheld devices that shoppers would bring home, use to keep track of their grocery needs, and then take to the store to scan purchases in the aisles.

Meanwhile, you still get to smell the halibut and thump those melons.

This was the first INET since the death last fall of **Jon Postel,** the man who for decades helped bring order to the Internet's inner workings. His family was on hand to accept the first Jonathan B. Postel Service Award on his behalf.

"He was the first of the Internet giants to depart from our midst . . . and he will be missed," said **Vint Cerf,** the outgoing Internet Society chairman. "He was a humble, devoted and often stubborn servant of the community that he loved."

Here's a bit of advice for technology conference planners: Never, never, never hand a microphone to a politician from the city hosting your event.

San Jose Mayor Ron Gonzales last week used his 10 minutes in front of a captive INET audience to deliver a boilerplate Chamber of Commerce sales pitch. "We're a business-friendly city, and we're an Internet-friendly city," Gonzales assured the roomful of fidgety technologists.

Of course, Gonzales' infomercial was positively spellbinding compared to the snoozer produced by **Los Angeles Mayor Richard Riordan** at Spring Internet World.

And don't give me that nonsense about protocol. Would you rather "insult" one windbag politician or the thousands of guests you invited to your conference?

While in the neighborhood, Buzz dropped in on **venture capitalist Jim Breyer,** managing partner at Accel Partners in Palo Alto. Breyer says his firm has been inundated with proposals built around "next-generation rich media communications and technology."

One such start-up is **FastForward Networks,** a San Francisco-based operation headed by Cisco expatriates. Recent recipients of a $3.6 million endorsement from Accel, FastForward is building network equipment it claims will finally allow Internet broadcasts that won't call to mind old newsreel footage.

Our chat ended when Breyer was called to the boardroom for a meeting with Groove Networks, another Accel-funded start-up whose directors include Breyer, fellow Accel partner and former Lotus CEO Mitch Kapor, and Groove founder Ray Ozzie, better known as the father of Lotus Notes. Buzz has long been pestering the always-congenial Ozzie for the full skinny on Groove, which is developing communications software.

Certainly this chance meeting would be the perfect opportunity to land that scoop, right? Fat chance.

I even offered to play recording secretary for the meeting, but was politely shown the door.

Don't disappoint Papa Buzz. Direct your Internet news tips to (508) 820-7471 or pmcnamara@nww.com.

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